

$OF(q_{11}, q_{12}, q_{13}, q_{21}, q_{22}, q_{23}, q_{41}, q_{42}, q_{43}, q_{51}, q_{52}, q_{53}, y_{11}, y_{12}, y_{13}, y_{14}, y_{15}, y_{21}, y_{22}, y_{23}, y_{24}, y_{25}, y_{31}, y_{32}, y_{33}, y_{34}, y_{35}, z_{31}, z_{32}, z_{33}, z_{34}, z_{35})$

Guess Values

$q_{11} := 0.5$	$q_{12} := 0.5$	$q_{13} := 0.5$	$q_{41} := 0.5$	$q_{42} := 0.5$	$q_{43} := 0.5$
$q_{21} := 0.5$	$q_{22} := 0.5$	$q_{23} := 0.5$	$q_{51} := 0.5$	$q_{52} := 0.5$	$q_{53} := 0.5$
$y_{11} := 50$	$y_{21} := 50$	$y_{31} := 50$	$z_{31} := 50$		
$y_{12} := 100$	$y_{22} := 100$	$y_{32} := 100$	$z_{32} := 100$		
$y_{13} := 50$	$y_{23} := 50$	$y_{33} := 50$	$z_{33} := 50$		
$y_{14} := 50$	$y_{24} := 50$	$y_{34} := 50$	$z_{34} := 50$		
$y_{15} := 50$	$y_{25} := 50$	$y_{35} := 50$	$z_{35} := 50$		

$$q_{41} \cdot (y_{11} + y_{12} + y_{13} + y_{15}) + q_{42} \cdot (y_{21} + y_{22} + y_{23} + y_{24} + y_{25}) + q_{43} \cdot (y_{31} + y_{32} + y_{33} + y_{34} + y_{35}) \leq 50$$

$$y_{11} + y_{21} + y_{31} + z_{31} \leq 100$$

$$y_{12} + y_{22} + y_{32} + z_{32} \leq 200$$

$$y_{13} + y_{23} + y_{33} + z_{33} \leq 100$$

$$y_{14} + y_{24} + y_{34} + z_{34} \leq 100$$

$$y_{15} + y_{25} + y_{35} + z_{35} \leq 100$$

$$\begin{aligned} &(3 \cdot q_{11} + q_{21} + q_{41} + 1.5 \cdot q_{51} - 2.5) \cdot y_{11} \downarrow \leq 0 \\ &+ (3 \cdot q_{12} + q_{22} + q_{42} + 1.5 \cdot q_{52} - 2.5) \cdot y_{21} \downarrow \\ &+ (3 \cdot q_{13} + q_{23} + q_{43} + 1.5 \cdot q_{53} - 2.5) \cdot y_{31} - 0.5 \cdot z_{31} \end{aligned}$$

$$\begin{aligned} &(q_{11} + 3 \cdot q_{21} + 2.5 \cdot q_{41} + 2.5 \cdot q_{51} - 2.0) \cdot y_{11} \downarrow \leq 0 \\ &+ (q_{12} + 3 \cdot q_{22} + 2.5 \cdot q_{42} + 2.5 \cdot q_{52} - 2.0) \cdot y_{21} \downarrow \\ &+ (q_{13} + 3 \cdot q_{23} + 2.5 \cdot q_{43} + 2.5 \cdot q_{53} - 2.0) \cdot y_{31} + 0.5 \cdot z_{31} \end{aligned}$$

$$\begin{aligned} &(3 \cdot q_{11} + q_{21} + q_{41} + 1.5 \cdot q_{51} - 1.5) \cdot y_{12} \downarrow \leq 0 \\ &+ (3 \cdot q_{12} + q_{22} + q_{42} + 1.5 \cdot q_{52} - 1.5) \cdot y_{22} \downarrow \\ &+ (3 \cdot q_{13} + q_{23} + q_{43} + 1.5 \cdot q_{53} - 1.5) \cdot y_{32} + 0.5 \cdot z_{32} \end{aligned}$$

$$\begin{aligned} &(q_{11} + 3 \cdot q_{21} + 2.5 \cdot q_{41} + 2.5 \cdot q_{51} - 2.5) \cdot y_{12} \downarrow \leq 0 \\ &+ (q_{12} + 3 \cdot q_{22} + 2.5 \cdot q_{42} + 2.5 \cdot q_{52} - 2.5) \cdot y_{22} \downarrow \\ &+ (q_{13} + 3 \cdot q_{23} + 2.5 \cdot q_{43} + 2.5 \cdot q_{53} - 2.5) \cdot y_{32} \end{aligned}$$

$$\begin{aligned} &(3 \cdot q_{11} + q_{21} + q_{41} + 1.5 \cdot q_{51} - 2.0) \cdot y_{13} \downarrow \leq 0 \\ &+ (3 \cdot q_{12} + q_{22} + q_{42} + 1.5 \cdot q_{52} - 2.0) \cdot y_{23} \downarrow \\ &+ (3 \cdot q_{13} + q_{23} + q_{43} + 1.5 \cdot q_{53} - 2.0) \cdot y_{33} \end{aligned}$$

$$\begin{aligned} &(q_{11} + 3 \cdot q_{21} + 2.5 \cdot q_{41} + 2.5 \cdot q_{51} - 2.6) \cdot y_{13} \downarrow \leq 0 \\ &+ (q_{12} + 3 \cdot q_{22} + 2.5 \cdot q_{42} + 2.5 \cdot q_{52} - 2.6) \cdot y_{23} \downarrow \\ &+ (q_{13} + 3 \cdot q_{23} + 2.5 \cdot q_{43} + 2.5 \cdot q_{53} - 2.6) \cdot y_{33} - 0.1 \cdot z_{33} \end{aligned}$$

$$\begin{aligned} &(3 \cdot q_{11} + q_{21} + q_{41} + 1.5 \cdot q_{51} - 2.0) \cdot y_{14} \downarrow \leq 0 \\ &+ (3 \cdot q_{12} + q_{22} + q_{42} + 1.5 \cdot q_{52} - 2.0) \cdot y_{24} \downarrow \\ &+ (3 \cdot q_{13} + q_{23} + q_{43} + 1.5 \cdot q_{53} - 2.0) \cdot y_{34} \end{aligned}$$

$$\begin{aligned} &(q_{11} + 3 \cdot q_{21} + 2.5 \cdot q_{41} + 2.5 \cdot q_{51} - 2.0) \cdot y_{14} \downarrow \leq 0 \\ &+ (q_{12} + 3 \cdot q_{22} + 2.5 \cdot q_{42} + 2.5 \cdot q_{52} - 2.0) \cdot y_{24} \downarrow \\ &+ (q_{13} + 3 \cdot q_{23} + 2.5 \cdot q_{43} + 2.5 \cdot q_{53} - 2.0) \cdot y_{34} \end{aligned}$$

$$\begin{aligned} &(3 \cdot q_{11} + q_{21} + q_{41} + 1.5 \cdot q_{51} - 2.0) \cdot y_{15} \downarrow \leq 0 \\ &+ (3 \cdot q_{12} + q_{22} + q_{42} + 1.5 \cdot q_{52} - 2.0) \cdot y_{25} \downarrow \\ &+ (3 \cdot q_{13} + q_{23} + q_{43} + 1.5 \cdot q_{53} - 2.0) \cdot y_{35} \end{aligned}$$

$$\begin{aligned} &(q_{11} + 3 \cdot q_{21} + 2.5 \cdot q_{41} + 2.5 \cdot q_{51} - 2.0) \cdot y_{15} \downarrow \leq 0 \\ &+ (q_{12} + 3 \cdot q_{22} + 2.5 \cdot q_{42} + 2.5 \cdot q_{52} - 2.0) \cdot y_{25} \downarrow \\ &+ (q_{13} + 3 \cdot q_{23} + 2.5 \cdot q_{43} + 2.5 \cdot q_{53} - 2.0) \cdot y_{35} \end{aligned}$$

$$q_{11} + q_{21} + q_{41} + q_{51} = 1$$

$$0 \leq q_{11} \leq 1.0 \quad 0 \leq q_{12} \leq 1.0 \quad 0 \leq q_{13} \leq 1.0$$

$$0 \leq q_{21} \leq 1.0 \quad 0 \leq q_{22} \leq 1.0 \quad 0 \leq q_{23} \leq 1.0$$

$$0 \leq q_{41} \leq 1.0 \quad 0 \leq q_{42} \leq 1.0 \quad 0 \leq q_{43} \leq 1.0$$

$$0 \leq q_{51} \leq 1.0 \quad 0 \leq q_{52} \leq 1.0 \quad 0 \leq q_{53} \leq 1.0$$

$$0 \leq y_{11} \leq 100 \quad 0 \leq y_{21} \leq 100 \quad 0 \leq y_{31} \leq 100 \quad 0 \leq z_{31} \leq 100$$

$$0 \leq y_{12} \leq 200 \quad 0 \leq y_{22} \leq 200 \quad 0 \leq y_{32} \leq 200 \quad 0 \leq z_{32} \leq 200$$

$$0 \leq y_{13} \leq 100 \quad 0 \leq y_{23} \leq 100 \quad 0 \leq y_{33} \leq 100 \quad 0 \leq z_{33} \leq 100$$

$$0 \leq y_{14} \leq 100 \quad 0 \leq y_{24} \leq 100 \quad 0 \leq y_{34} \leq 100 \quad 0 \leq z_{34} \leq 100$$

$$0 \leq y_{15} \leq 100 \quad 0 \leq y_{25} \leq 100 \quad 0 \leq y_{35} \leq 100 \quad 0 \leq z_{35} \leq 100$$

$$q_{12} + q_{22} + q_{42} + q_{52} = 1$$

$$q_{13} + q_{23} + q_{43} + q_{53} = 1$$

$\begin{bmatrix} q_{11} \\ q_{12} \\ q_{13} \\ q_{21} \\ q_{22} \\ q_{23} \\ q_{41} \\ q_{42} \\ q_{43} \\ q_{51} \\ q_{52} \\ q_{53} \\ y_{11} \\ y_{12} \\ y_{13} \\ y_{14} \\ y_{15} \\ y_{21} \\ y_{22} \\ y_{23} \\ y_{24} \\ y_{25} \\ y_{31} \\ y_{32} \\ y_{33} \\ y_{34} \\ y_{35} \\ z_{31} \\ z_{32} \\ z_{33} \\ z_{34} \\ z_{35} \end{bmatrix}$

$:= \text{maximize} (OF, q_{11}, q_{12}, q_{13}, q_{21}, q_{22}, q_{23}, q_{41}, q_{42}, q_{43}, q_{51}, q_{52}, q_{53}, y_{11}, y_{12}, y_{13}, y_{14}, y_{15}, y_{21}, y_{22}, y_{23}, y_{24}, y_{25}, y_{31}, y_{32}, y_{33}, y_{34}, y_{35}, z_{31}, z_{32}, z_{33}, z_{34}, z_{35})$

Solver

q_{11}	0.138
q_{12}	0.000
q_{13}	0.810
q_{21}	0.000
q_{22}	0.000
q_{23}	0.000
q_{41}	0.000
q_{42}	0.000
q_{43}	0.000
q_{51}	0.862
q_{52}	1.000
q_{53}	0.190
y_{11}	6.765
y_{12}	0.000
y_{13}	14.718
y_{14}	18.343
y_{15}	20.693
y_{21}	3.658
y_{22}	200.000
y_{23}	26.998
y_{24}	18.349
y_{25}	16.195
y_{31}	75.257
y_{32}	0.000
y_{33}	24.919
y_{34}	20.360
y_{35}	19.818
z_{31}	14.320
z_{32}	0.000
z_{33}	33.366
z_{34}	42.948
z_{35}	43.294

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$OF(q_{11}, q_{12}, q_{13}, q_{21}, q_{22}, q_{23}, q_{41}, q_{42}, q_{43}, q_{51}, q_{52}, q_{53}, y_{11}, y_{12}, y_{13}, y_{14}, y_{15}, y_{21}, y_{22}, y_{23}, y_{24}, y_{25}, y_{31}, y_{32}, y_{33}, y_{34}, y_{35}, z_{31}, z_{32}, z_{33}, z_{34}, z_{35})$