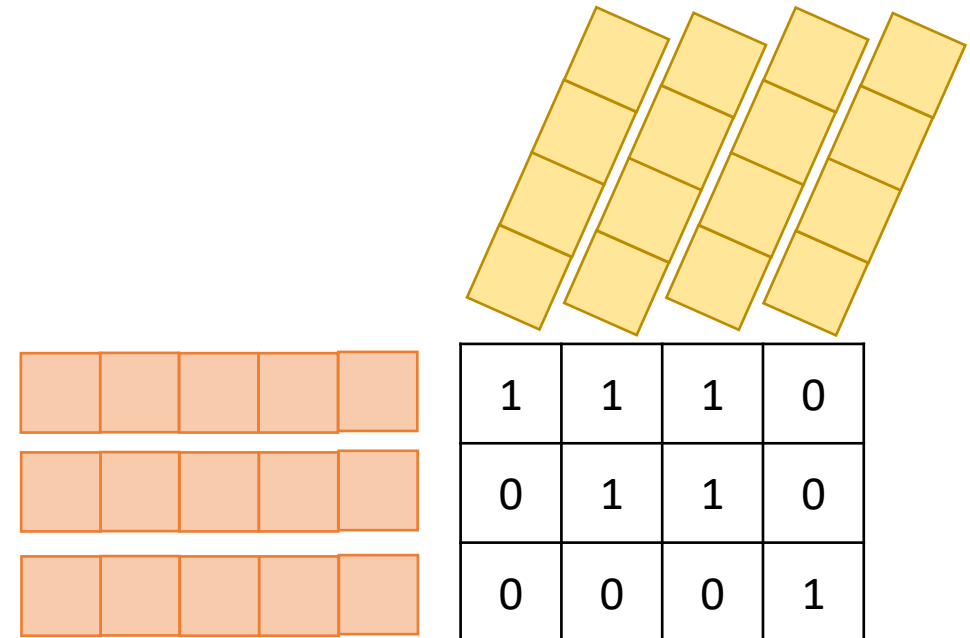# My most recent developments

Block-based methods

Mon	Tue	Wed	Thu	Fri	Sat	Sun	Mon	Tue	Wed	Thu	Fri	Sat	Sun
						F							

- Compress sequence constraints into blocks
- Convert to new inter-block constraints

1	1	1	0
0	1	1	0
0	0	0	1

Block-based methods

- Full Blocks
  - Shift types included in block generation
    - + Very few constraints
    - - Exponential #variables in shift types!

- Day Blocks
  - Blocks represent works/doesn't work days
    - + Greatly reduced #blocks
    - - More complex model

- Hybrid method?

Maximal BiClique Optimization

- Merge large number of exclusive constraints

- Tightens relaxation

- Esp. Effective for:
  - Inter-block constraints
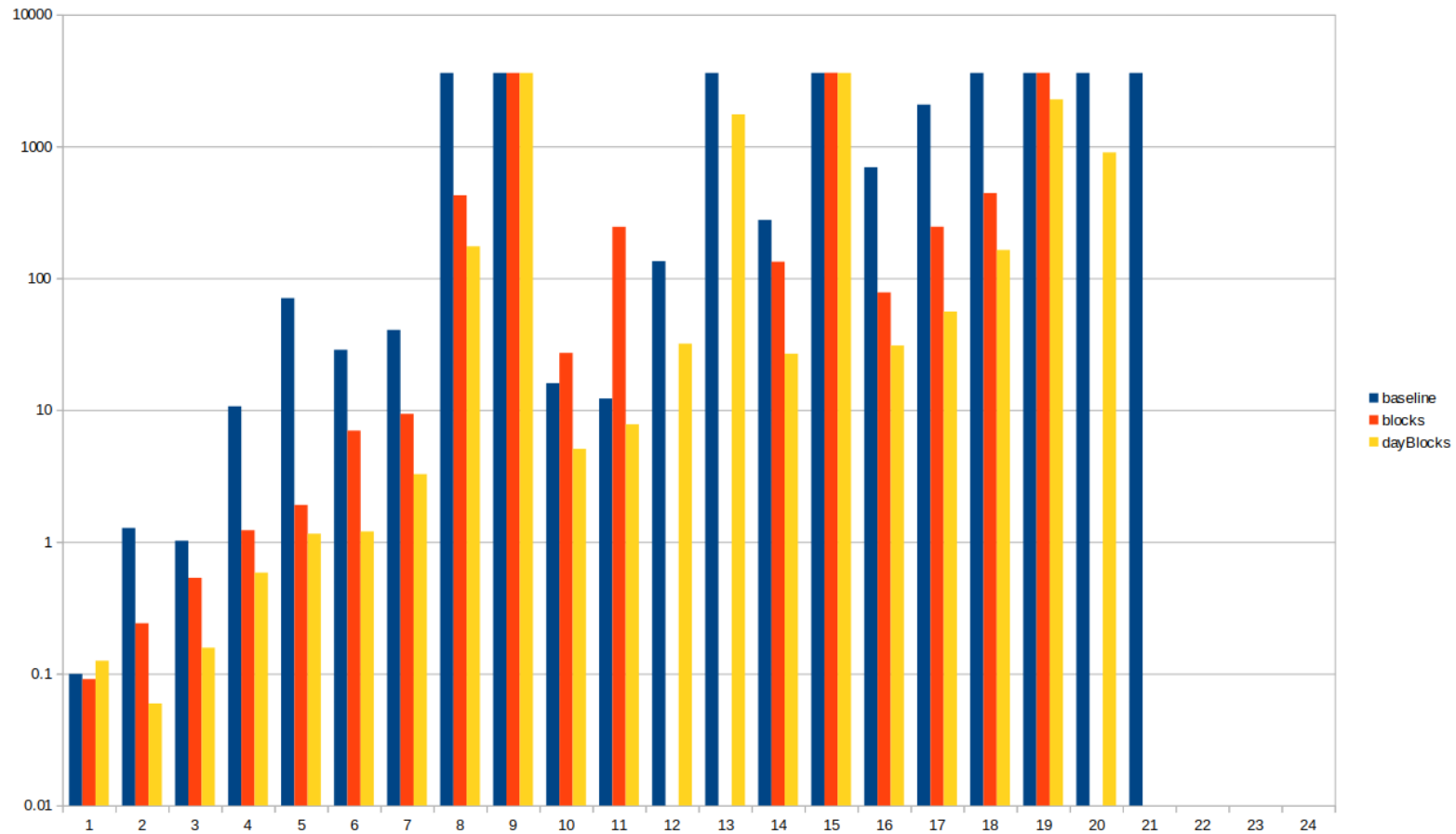 - Shift Rotation constraints

1	1	1	0
0	1	1	0
0	0	0	1

$$x_r + x_c \leq 1$$

1	1	1	0
0	1	1	0
0	0	0	1

$$\sum_{r \in R} x_r + \sum_{c \in C} x_c \leq 1$$

Results – Method comparison

Results – Maximal BiClique optimization