Double round robin constraints in tensor form

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Constraint listings

The current representation of the (double) Round Robin tournament: $MD \in \mathbb{B}^{ndxntxnt}$

- nt: number of teams
- nd: number of matchdays in the complete round robin tournament

1. A team never plays itself:
   (a) $\forall day, team : MD[day, team, team] = 0$
2. A team can only play maximum 1 game each matchday
   (a) $\forall day, team : \sum_{t'}(MD[day, team, t'] + MD[day, t', team]) \leqslant 1$ this if nt is odd
   (b) $\forall day, team : \sum_{t'}(MD[day, team, t'] + MD[day, t', team]) = 1$ this if nt is even
3. End of cycle point: After the first cycle of your round robin tournament(the amount of cycles does not specifically matter, this constraint is mandatory after every cycle, but only modelled after the first because this is double round robin), you should have played every team once.
   (a) $\forall t \neq t' : \sum_{d=0}^{D/2}(MD[d, t, t'] + MD[d, t', t]) = 1$
4. Double round robin exclusive constraint: after the whole schedule, each team has played every other team twice, once home once away.
   (a) $\forall t \neq t' : \sum_{d=0}^{D} MD[d, t, t'] = 1$
5. The Home and away pattern: for now we only model this for an odd number of teams, it consists of 2 parts: we never want to play consecutive games at home, nor away
   (a) $\forall t \wedge t' \neq t : MD[d, t, t'] + MD[d + 1, t, t'] \leqslant 1$
   (b) $\forall t \wedge t' \neq t : MD[d, t', t] + MD[d + 1, t', t] \leqslant 1$