ASYMMETRIC SPORTS SCHEDULES FOR THE GERMAN BASKETBALL LEAGUE

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ABSTRACT

In this paper we discuss the problem of finding an optimal schedule for the German Basketball League (BBL) for the season 2011/2012. The main problem is that most of the games take place in multi-purpose arenas which are also used for a wide variety of other events as well and are thus not always available.

Furthermore, the total number of successive home or away-games has to be minimized, the most interesting games have to be assigned to TV broadcasting slots, the total distance driven on a newly established derby day has to be minimized and several wishes for home or away-games of teams or specific encounters have to be taken care of.

We present several algorithmic approaches and show how good the different models fit the needs of the BBL. In this process, we prove that the classic models which have been applied by the BBL and are still applied by lots of other leagues as well are too limited to meet the requirements. We show that there are no canonical schedules which have the desired properties. We could also prove that there are no mirrored plans which do much better and could thus convince the BBL to apply non-mirrored schedules to their league for the first time in their history.

As all of the requirements mentioned above are very typical for sports leagues in general, the presented approaches are not limited to the considered example of the BBL but can be applied to a whole variety of other sports leagues as well. Especially, since lots of other leagues still use mirrored schedules, it is quite thinkable that many of their problems can be solved in a better way by making use of our concepts as well.

Our method has been implemented in a scheduling software which we developed for the German Basketball League and which was first applied to generate the plan for the season 2011/2012.

KEYWORDS. Optimization. Sports Scheduling

OA - Other applications in OR

OC - Combinatorial Optimization