Improved execution times by specialized data-structures and algorithms for scheduling problems (Pieter Audenaert, Didier Colle, Mario Pickavet and Piet Demeester)

Many sport scheduling problems are formulated as an optimization problem and solved by common operations research techniques like for example linear programming. To that aim, optimization software packages that implement generic solving strategies like the simplex method are widely used. However, by the very fact of using a generic approach to the problem, domain-specific knowledge is not exploited to its full extent. A contrasting approach is to take advantage of this additional circumstantial data and put it to good use, which directly leads to faster execution times than those obtained with classical operations research techniques. In this paper, we introduce some of the more esoteric data-structures and algorithms that are especially useful for efficient sport scheduling. When applied balanced, a fine-tuned special-purpose implementation can lead to faster execution times for selected problems.