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Brian Macdonald* (bmac@jhu.edu), Florida Panthers, 1 Panther Parkway, Sunrise, FL 33323,
and **William Pulleyblank**. *Realignment in the NHL, MLB, NFL, and NBA*.

We describe a method for realigning sports leagues that is flexible, adaptive, and that enables construction of schedules that minimize travel while satisfying other criteria. Our algorithm includes (1) a method of estimating total league travel without knowing the schedule ahead of time, (2) a fast heuristic that generates thousands of possible league structures, and (3) a way to find the exact solution to the problem, which shows that our heuristic succeeds in constructing optimal solution. We also provide a way to visualize both the solutions and the algorithms used to generate the solutions. We examine a variety of scenarios for the NHL, and also apply our methods to the NBA, MLB, and NFL. We find the biggest improvements for MLB and the NFL, where adopting the best solutions would reduce league travel by about 20%. (Received September 16, 2014)