T-W. HO, T-C. CHEN, C-C. CHOU. ***Integrating optimization and data mining techniques for high-speed train timetable design considering disturbances.*** *Gerontechnology 2012;11(2):323;* doi:10.4017/gt.2012.11.02.385.00 **Purpose** The Taiwan high-speed railway (THSR) system plays an important role in maintaining efficient transportation of passengers around Taiwan. However, the control mechanisms of THSR and the traditional railway systems are quite different. Drivers on THSR-trains cannot control the cars by themselves; only the control center of THSR can give the commands, which are based on the train timetables and should be followed by the drivers to operate the cars[1,2]. Moreover, when a disaster occurs, the control center needs to prepare a re-scheduled timetable in accordance with current situations that drivers can follow. **Method** This study presents a methodology to establish a set of optimal operation rules which are tree-based rules for real-time train timetable control for the THSR-system. The rules can be used to determine the optimal real-time operation during disturbances. Steps of the proposed methodology involve: (i) building of train timetable optimization model, (ii) generation of optimal input-output patterns, and (iii) extraction of tree-based rules for designed scenarios using the decision-tree algorithm. **Results & Discussion** The model could generate a timetable result that was as good as a real timetable. This means it has potential as a simulation analysis for predicting the effect of disruptions on the timetable without doing the real experiment with train timetables during disruptive events (*Figure 1*).

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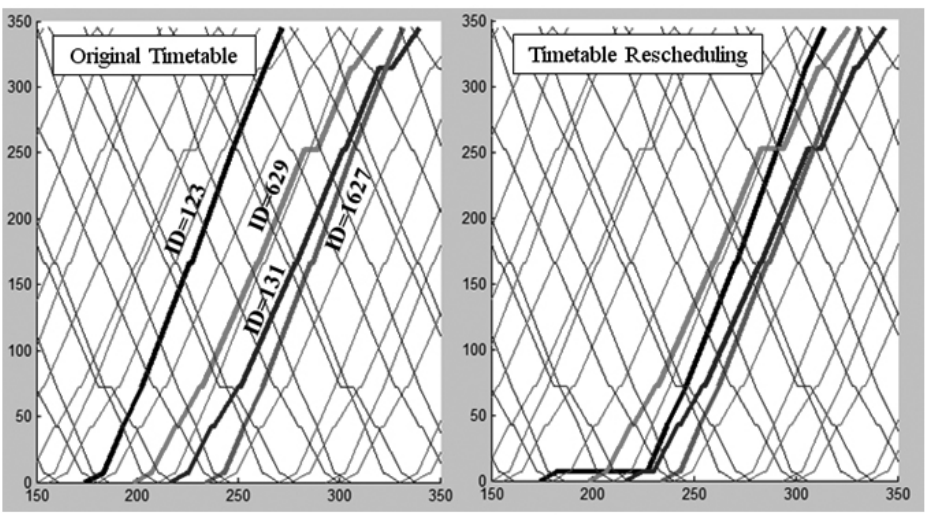

Figure 1. The influence of a train delay on global timetable delay