Previous chapters motivated the need for precision checking and introduced a precision measure based on escaping arcs. This chapter illustrates the evaluation of precision in practice using the University case presented in Chapter 1. Additionally, the chapter presents empirical results to illustrate the characteristics of the approach. Later chapters consider variants and extensions of the procedure to adapt it to particular conditions.

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6.1 The University Case: The Appeals Process

In Chapter 1, the University Case is presented: a university is planning on changing its obsolete system which manages academic processes to a new system called USoft. For that, the university compares the event data generated by the legacy system with the process models of USoft in order to analyze the precision.

In this section we describe the precision analysis performed for the appeals process, the process that concerns those cases where the student needs to be expelled from the university, for low academic results, severe ethics violations, or other circumstances.

The precision analysis is performed as follows:

1. First, the data recorded by the legacy system is processed. Several tables of the system database containing the information regarding the appeals process are identified, and the information is extracted and consolidated in terms of an event log. That data includes 1100 cases from the last 10 years, and 23 different types of events.

2. In the second step, the process model for the appeal process contained in USoft is considered. Figure 6.1 shows a fragment of the USoft model for such process, in its BPMN notation. In order to check precision using the technique presented in Chapter 5, the relevant parts of the process model are converted to Petri nets. Both Petri net and event logs are pre-processed in order to guarantee same names for the activities.

3. Then, the escaping arcs based precision checking is applied and the results are analyzed. Figure 6.2 show a fragment of the results provided by the ProM plug-in Precision for DPN, developed by F. Mannhardt. The results provided by the tool include a visualization of the Petri net coloring the places with precision problems (top right), the minimal imprecise traces denoting the comparison between observed and possible arcs (top left), and a summary of the precision and arcs, including the observed and possible arcs for each place.

4. After analyzing the results, the university concludes that the USoft model for the appellation process is precise enough for their requirements (0.778). Moreover, the university identifies two precision problems from the results. First, the model allows for t21 and t22 in parallel. However, the log reflects a sequential order...