

Declarative Process Discovery: Linking Process and Textual Views

<https://documentation.dcr.design/articles/declarative-process-discovery-linking-process-and-textual-views/>

Process models are conceptual representations of work practices. They allow us to better understand how stakeholders organize, communicate and enact processes. However, a business process is more than its model. Important information about the rationale of the process is hidden in accompanying documents, written in natural language. If we want to support non-specialists to better understand business processes, it is key to create hybrid artefacts that can align their model and textual views. In this paper, we introduce a framework for business process discovery from natural language texts. We use declarative process models as our target modelling technique. The manual discovery of declarative process models from texts is particularly hard as users have difficulties identifying textual fragments denoting business rules. Our framework provides an algorithmic solution to this. By combining machine-learning and expert system techniques, we can reduce the discovery problem to a set of classification techniques for each type of process element. The combination of the two techniques allows 1. the identification of process components in texts, 2. the enrichment of predictions with semantic information, and 3. the generation of consolidated hybrid models that link text fragments and process elements. In addition, our framework reduces false-positives by including co-reference resolution techniques. Our initial evaluation reports state-of-the-art performance in precision and recall against process models manually created from texts. Finally, this framework has been part implemented by our industrial partner.

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