BPMN-Q: A Language to Query Business Processes

Ahmed Awad
Motivation

- A company with hundreds of business processes, we need to do:
  - Discovery of frequent Process Patterns
  - Process variants: with new business contracts, customize rather than build from scratch
  - Compliance Checking
- Tool to investigate specification of business processes
BPMN-Q

- Uses concepts and notations from BPMN
- Introduces new concepts
- Designed to query repositories of process models
- Matches a query graph (pattern) to a process graph
Process Graph Versus Query Graph
Language Elements: Variable Activity

Query: Find activities that occur after A

Process Definition

Result
Language Elements: Generic Split/Join

Ahmed Awad 13.10.2007
Language Elements: Path

Query: Find All execution paths between A,B

Process Definition

Result
Language Elements: Path(with Exclude)

Query: Find All execution paths between A, B
Not including D

Process Definition

Result
Example: Compliance Checking
We need to check a set of regulation rules related to Money-Laundering.

- Rule 1: Before opening an account, customer information must be obtained and verified.
- Rule 2: Whenever a customer requests to open a deposit account, customer information must be recorded before opening the account.
- Rule 3: When a customer deposits a large amount of money, this transaction must be reported.
Rule 1: Before opening an account, customer information must be obtained and verified.

Pattern we want

Obtain Customer Info

Retrieve Full Customer Info

Analyze Customer Relation

Submit Deposit

Prepare Prop. Doc

Propose Account Opening

Obtain Customer Info

Open Account

Verify Customer ID

Record Customer Info

Record Acc Info

Open Acc Status Review

Verify Customer ID

Open Account

Validate Acc Info

Apply Acc Policy

Activate Acc

Evaluate Deposit Val

Close Acc

Do Deposit

Report Large Deposit

Notify Customer
Example (Cont.)

Reformulating the query as: is it possible to open an account without first obtaining customer info and verifying her ID?

No Match!
Example (Cont.)

Rule2: Whenever a customer requests to open a deposit account, customer information must be recorded before opening the account.
Example (Cont.)

Rule3: When a customer deposits a large amount of money, this transaction must be reported.
Tool Support
Summary & Future Work

- BPMN-Q: is a language to query the structure of business processes
- It uses graphical notation of BPMN in addition to new notations.
- Query processing is by matching the query pattern to the process definition

Future Work
- Providing the capability of querying based on dataflow
- Providing the capability of querying based on communication between processes
Thank You!
Questions are welcome