
A Scenario-View Based Approach for Supporting Mediated Web Service Interactions

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- **Background and Motivation**
- **Logical Steps for Proposed Research**
- **Conclusion**

- **Web Service interaction: the core of SOA**
- **Autonomy, heterogeneity → mismatches normally exist among Web services → data and process mediators are needed → mediated Web service interaction**
- **Behavioral aspect is our focus**

- **Compatibility analysis: to check whether business processes can interact properly beforehand**
- **Shortcomings of current compatibility:**
 - ❑ **Do not allow mismatches among business processes**
 - ❑ **Aim at direct service interactions**
 - ❑ **Results in a binary or ternary answer**

- **Process Mediation: to facilitate service interactions at runtime**
- **Shortcomings of current process mediators:**
 - ❑ **Design-time mediation: specific adapters for specific mismatch patterns**
 - ❑ **Consider control-flow only, and ignore data-flow almost**

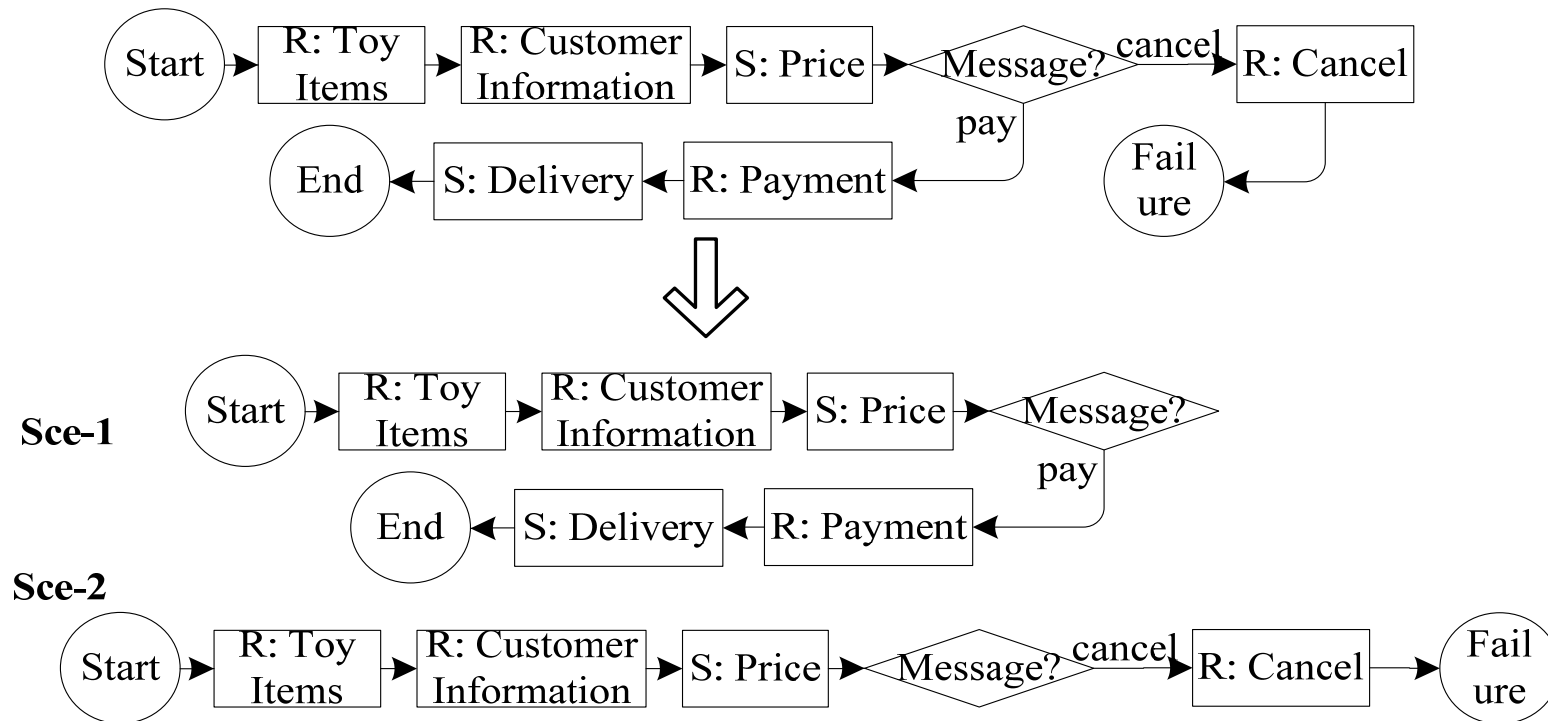
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Logical Steps for Our Research

- **Scenarios and Views for describing business processes**
- **Compatibility analysis for business processes. A degree of compatibility, rather than a binary or ternary answer**
- **Process mediator (in-progress)**

Scenario and view generation (1)

- **Scenario: a scenario is a possible execution of a business process**



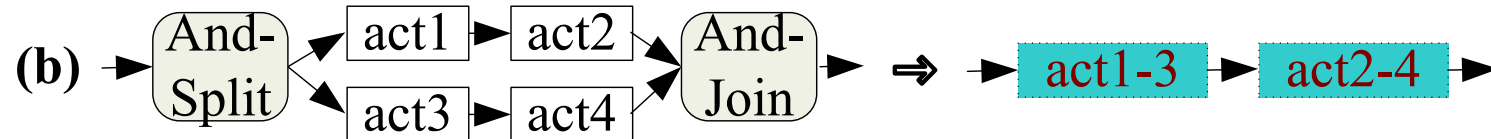
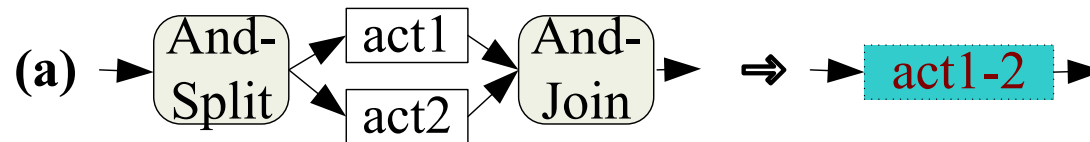
Scenario and view generation (2)

- **Reduction rules:**

- **Sequence:**

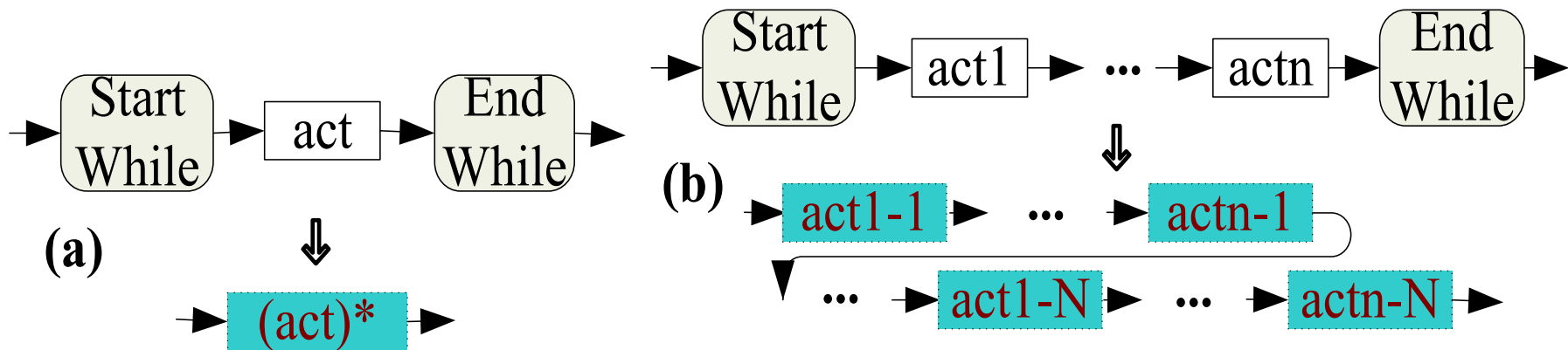


- **And-Block:**



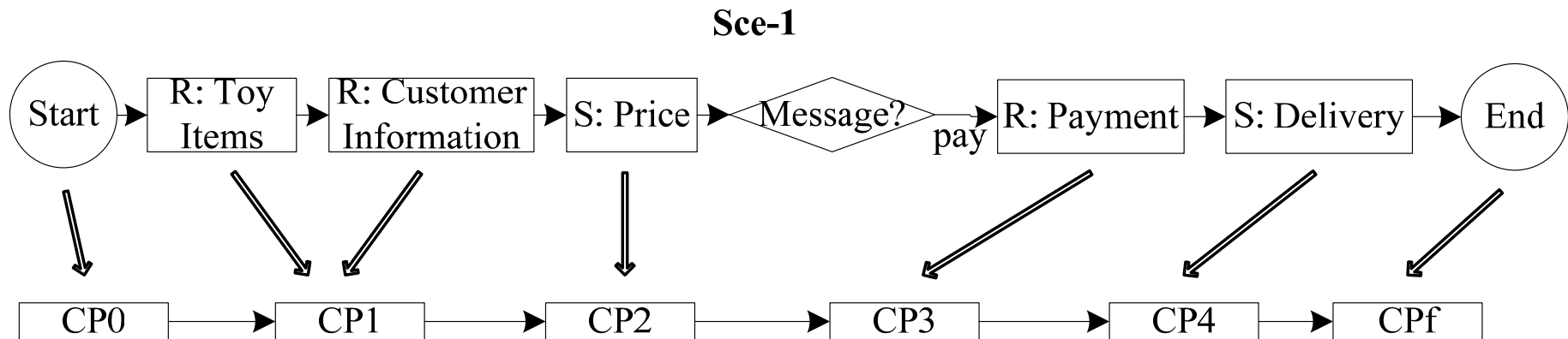
Scenario and view generation (3)

- Reduction rules:
 - Loop-Block:



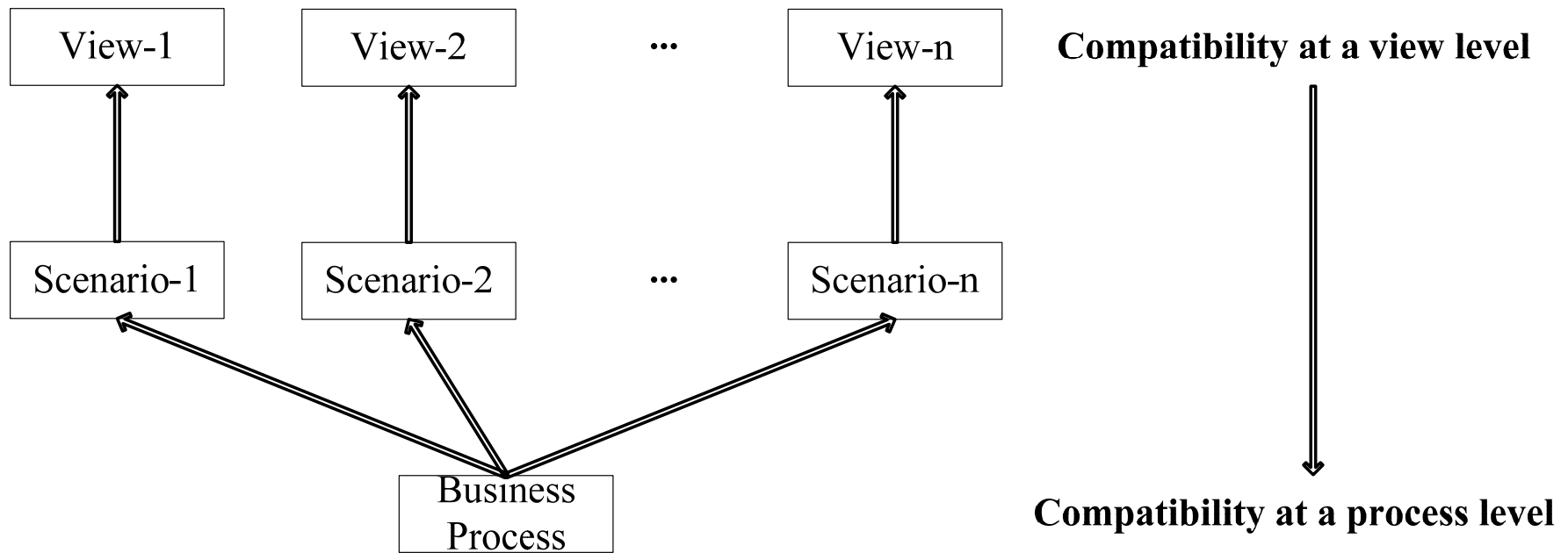
Scenario and view generation (4)

- A view for a scenario using reduction rules:



The view for Scce-1

Compatibility Analysis



Compatibility Analysis

- **A degree of compatibility**

$$\text{Compatibility}(p_1, p_2) = \frac{\sum_1^{n_1} \text{comp}(v_i | p_2)}{n_1}$$

Types of Compatibility

- *No compatibility* if $\text{Compatibility}(p_1, p_2) = 0$.
- *Partial compatibility* if $0 < \text{Compatibility}(p_1, p_2) < 1$.
- *Full compatibility* if $\text{Compatibility}(p_1, p_2) = 1$.

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Conclusion

- **Compatibility analysis and process mediator are needed for mediated service interactions**

 - **Proposed approach**
 - **Scenarios and Views can be generated to describe business processes**
 - **The degree of compatibility for business processes can be computed based on pairwise compatibility of their view**
 - **Process mediator, need to deal with mismatches at runtime**

 - **Current Status**
 - **Scenario and views generation is done**
 - **Compatibility analysis is almost done**
 - **Process mediator is in-progress**
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Thanks and Questions!

Thanks a million!
Questions?