

D2v02. Web Service Modeling Ontology (WSMO)

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The dual role of Choreography and Orchestration as the gist of the matter in understanding web services

1 Introduction

- minor changes reflecting changes in other paragraphs

2 Principles and Approach

- Delete this section. It is more for an ideology document on WSMO than for a language spec.

3 Non functional properties - core properties

- No changes

4 Ontologies

- No changes

5 Goals

- No changes

6 Mediators

- No changes

7 Web Services

- 7.1 Non functional properties - no changes
- 7.2 Capability - no changes

7.3 Interfaces - severe changes

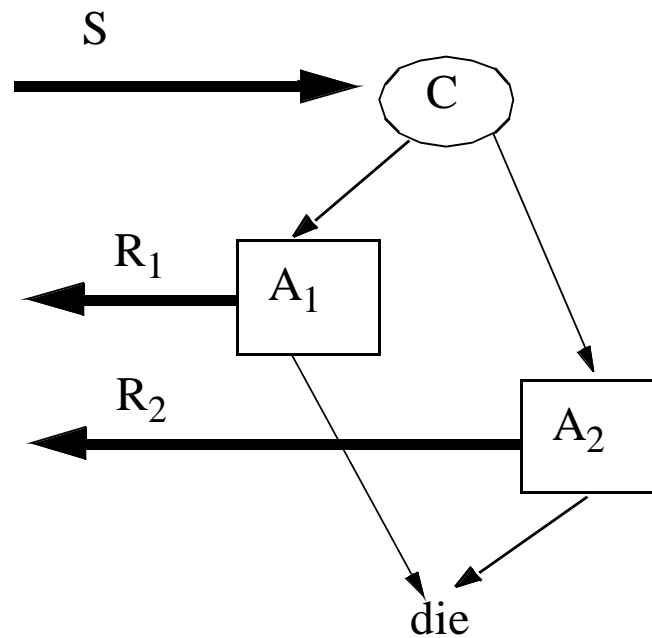
- nonFunctionalProperties - no changes
- errors - no changes
- choreography - severe changes (correction of a mistake)
- compensation - no changes
- messageExchange - concretization
- orchestration - new element (actually it was already there but named wrongly)

Message Exchange Pattern, Choreography, and Orchestration

- Message Exchange Pattern
- Choreography
- Orchestration

Message Exchange Pattern

- A message exchange pattern specifies a sequence of conditional speech acts that either send or receive communication symbols.
- In between the communication ask, non-specified actions are defined.



Message Exchange Pattern

- State-less MEPs model stimulus-response patterns (behavioral point of view).
- State-based MEPs model *conversations* (modern cognitive science point of view).

Choreography

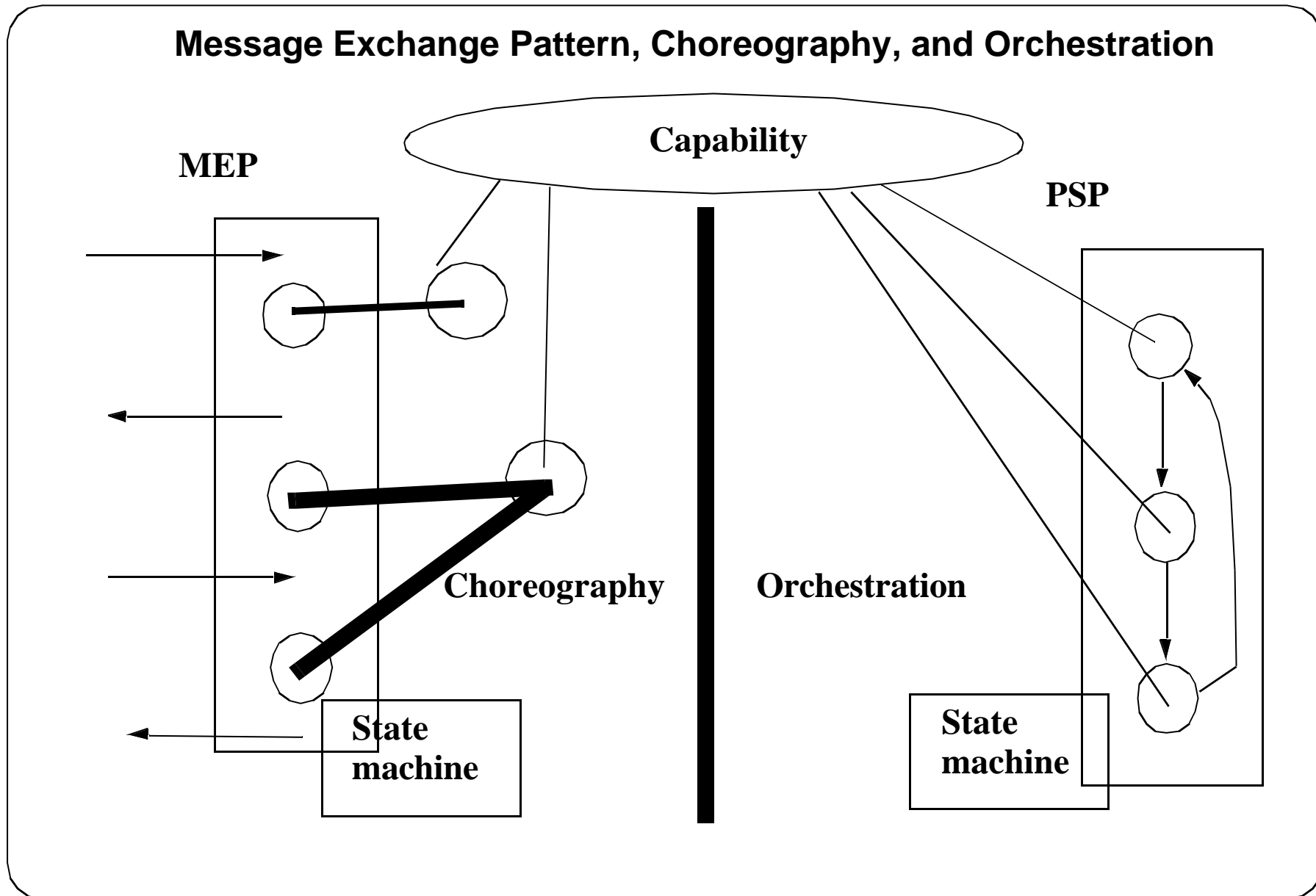
- The difference between message exchange patterns and a choreography is the difference between communication and cooperation.
- A MPE defines a generic communication pattern.
- A choreography instantiates a generic communication pattern by a cooperation. That means:

Choreography

- 1. A choreography decomposes a task into subtasks, i.e., it decomposes a web service capability into sub-capabilities.**
- 2. This sub-capabilities are used to define the generic activities in a MEP.**
- 3. The I/Os of this sub-capabilities define the message formats of a MEP.**

Orchestration


- 1. An orchestration decomposes a task into subtasks, i.e., it decomposes a web service capability into sub-capabilities.**
- 2. This sub-capabilities refer to other web services (our proxies) that are required to achieve the overall capability.**
- 3. A PSP (Problem-solving Pattern) is used to define the decomposition and the data and control flow between the sub-capabilities. It is instantiated by an orchestration like a MEP is instantiated by a choreography.**



Choreography and Orchestration

- We provide different decomposition of process/capability to the top (service requester) than to the bottom (service provider).
 - The choreography *provides* decomposed services
 - The orchestration *requests* decomposed services
- Therefore, we define a twofold view on the operationalization of the competence of a web service.
- This twofold view is actually the first major intellectual step of WSMF beyond UPML where a simplistic hierarchical refinement view was chosen.

Choreography and Orchestration

- Actually we are suddenly in the heart of *process mediation*.
- How to manage this *difference between the process decomposition at the choreography and the orchestration level* is the business intelligence of the web service provider.
- It is the core where he comes in as a Silverbullet.
- The firewall () between choreography and orchestration refer to the actual implementation of the web service. It provides the “missing link “between them.

7.4 Groundings

- Could somebody put similar intellectual effort into grounding like I did for the interface?
- We may want to make it more concrete following the line of the web service architecture draft.

8 Formal Language Specification for WSMO

- Introduce F-logic and XSB syntax
- Define a BNF syntax
- Define an XML schema syntax
- Define an RDF schema syntax
- Define an OWL syntax

9 Conclusions and further directions

- Have here a reference to WSMO-Lite and WSMO-Full

10 Acknowledgement

- make sure all projects paying for are mentioned!

11 Appendix

- include in section on mediators.