



Semantics & Web Services

11/15/02



Aims

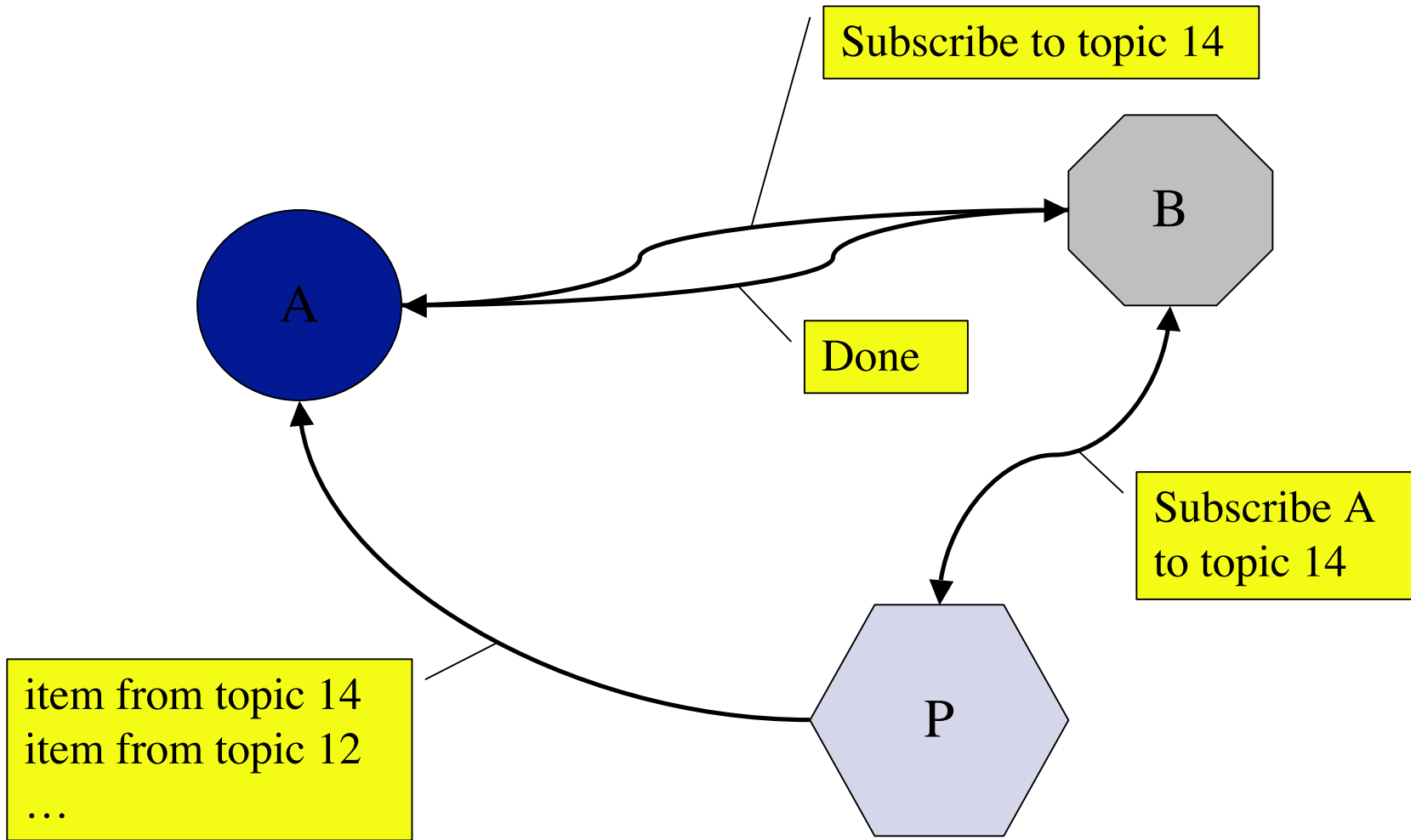
- Motivation for explicit semantic descriptions
- Clear water between choreography and semantic description
- Placing semantics in an extended WSA



Why we need semantics

- Types are not enough:
 - **deposit and withdraw from account have the same type signature, but with a different effect**
- Formal documentation of meaning
 - **same motivation as for anything else**

Clear Water

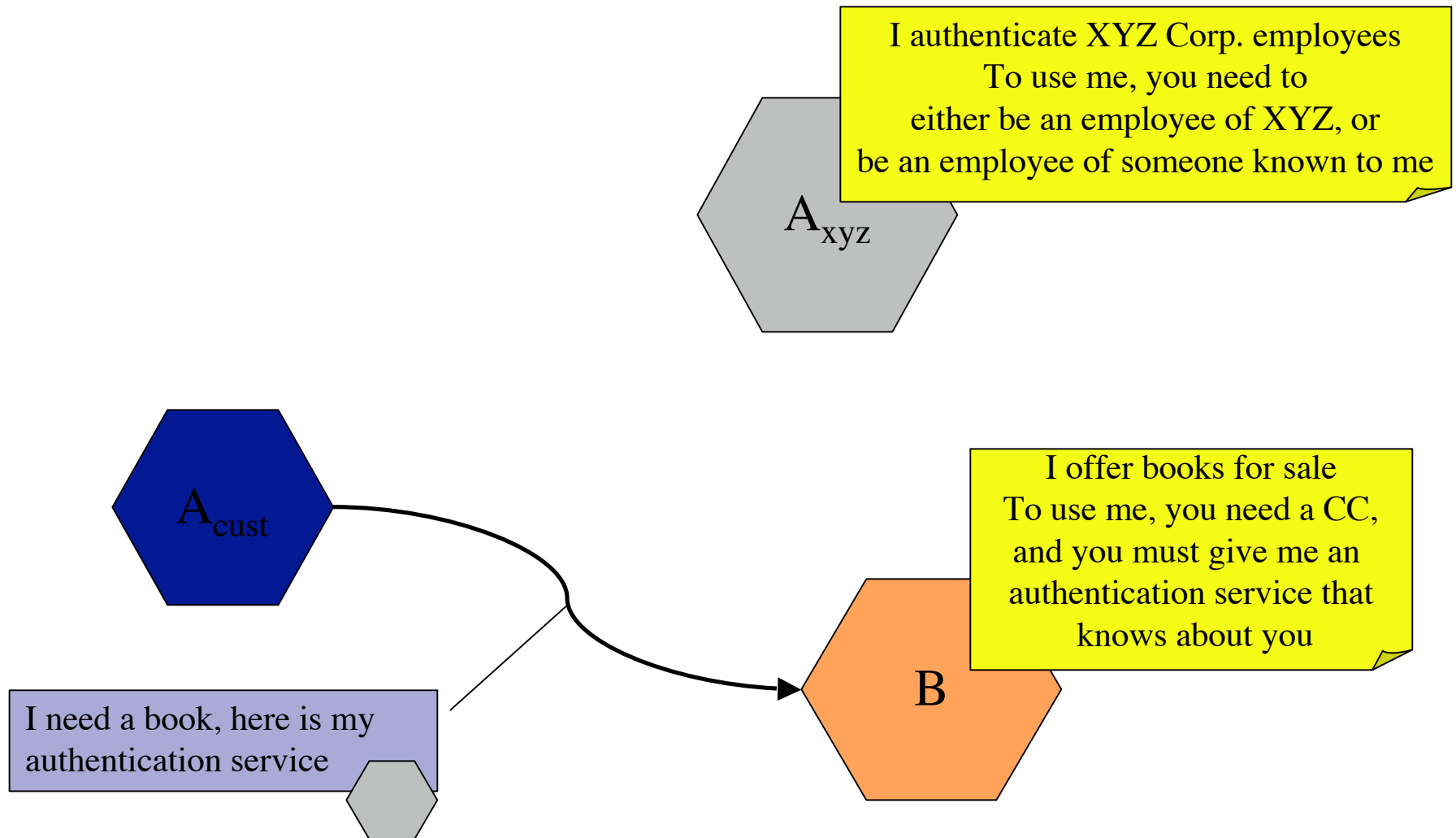


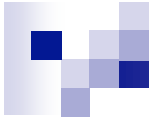


Contracts and services

- A WS ‘should’ publish a contract that defines the semantics of the service
- The contract ‘should be’ machine processable
 - **Not all clients need to ‘understand’ contracts, simple clients can use contract reference.**

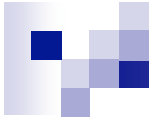
Triangular agents





What's in a contract

- Rights and obligations of parties
 - **expected effects of actions**
 - **who is doing what to whom**
- Effect of invoking services
 - **Preconditions, effects**
- Notable events
 - **E.g., it counts as having accepted the CC details if the order has been acknowledged**
- Definition of terms
 - **references to external ontologies**
 - **local definitions specific to the agreement**



Semantics in the WSA

- Notation for expressing contracts
- Constraint:
 - **A web service may publish a contract that defines the semantics of the service**
- Link with choreography:
 - **There may be references to contracts in a choreography**



There is a space marked 'semantics'

- In this space:
 - **description of effects, requirements, policies**
 - **description of principals, roles etc.**
 - **binding action and description**
- Technology gaps
 - **language for describing semantics**
- Relationship to other architectural elements
 - **transport**
 - **service description**
 - **choreography**
- Services
 - **reputation services, escrow services, better authentication services**