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Choreography and Coordination

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Choreology

- a real word
  - but not in all dictionaries
- science and notation of movement
  - Benesh Movement Notation
  - Reading Dance, the Birth of Choreology
    - R Benesh and J Benesh
- interplays of commerce

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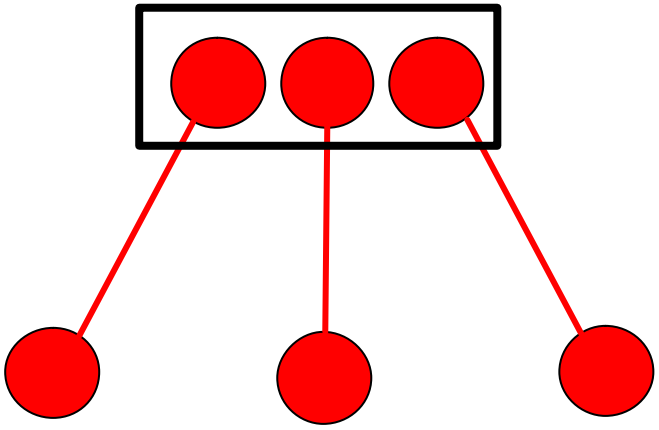
Coordination

Coordination = agreement between two or more parties on their mutually shared state

If two can be coordinated, many can be



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Agreement

How can two walk together unless they are agreed?

– Amos 3.3

To reach agreement, one side must make a contingent offer:

- if the other says yes, the contingent becomes definite
- If the other says no, the contingent is not

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Contingent offer

- Contingent offer
  - binding commitment
  - dependent only on the other's decision
- Offer is based on contingent operations
  - known when performed that they are contingent
- End position
  - assured common knowledge

(I know that he knows that I know ….)

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Contingent operations

- provisional, then await a final decision – yes or no
- several alternatives for provisional state
  - hidden
  - identical to initial
  - identical to final
  - explicit intentional information

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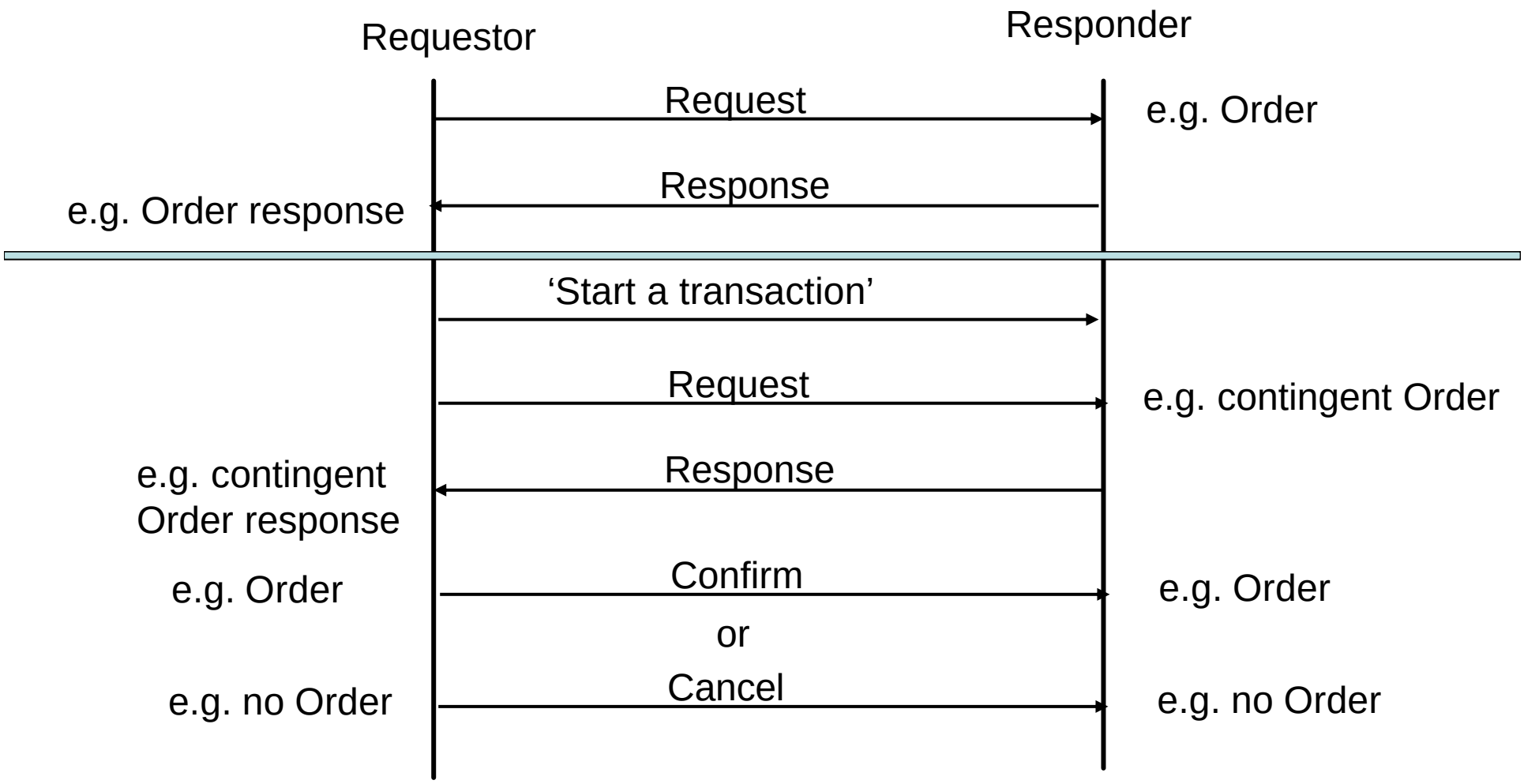
Unconditional versus contingent



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Two choreography descriptions ?

- interaction description
  - external, public
  - dynamic equivalent of an interface definition
- process description
  - internal, private
  - equivalent of a program

- Coordination requirement in either case

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Compensation in each description

- process description
  - "catch block" compensation
- interaction description
  - delegated compensation

(Just one choice for implementing delegated cancellation)

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"Catch block" compensation

- Covers some set of forward operations (the "scope")
- Which operations are in the scope need not be visible outside this process
- If something goes wrong in the scoped actions, perform other actions
- Intent is to return to an acceptable state **as viewed from this process**
- Content determined by this process's motivations
- May involve parties that weren't involved in the original scope
- Might not reverse successful operations from original scope

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Delegated compensation

- Covers some set of forward operations (the “scope”) invoked on one service
- Which operations are in the scope is known to user and to service
- Cancellation is triggered by user instruction or by service insistence
- Intent is to return service to an acceptable state **as viewed from the user**
- Content of compensation (if that’s the chosen approach) determined by service’s understanding of its own actions arising from the forward operations
- Only directly involves the service (others may be indirectly)
- Would normally reverse all originally successful operations

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WS-Choreography and Coordination

- Exactly what coordination support is needed depends on style of WS-Choreography output
- Without a good handle on coordination, it will be hard to define good business protocols (= choreographies)

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Requirement – process style

- a process description technique needs to have ways of:
  - starting a transaction
  - identifying which actions are to be included in the transaction
  - terminating of the transaction, requesting “confirm” or “cancel”.
  - reporting the result (“confirm”, “cancel” and “hazard”)

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Requirement – interaction style

- an interaction description technique needs to have ways of stating:
  - that an operation is being requested on the understanding that it is contingent
    - context propagation
  - that a set of operations are jointly contingent
  - that an entity has performed actions that it declares are contingent
    - enrollment
  - what will bring finality to contingent operations
    - the decision protocol

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Non-requirement

- It is **NOT** a requirement to specify a transaction protocol. BTP and WS-C/T provide more than enough specifications already