Merging Collaboration and Conversation

BPMN 2.0 FTF Interactions Sub-Group
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Goals of the Merger

• Simplify implementability and usage of specification
  – Current terminology overused and confusing, for example, 4 C-word terms.
  – Reduce 3 BPMN interaction diagrams to 2: Conversation to become part of Collaboration because of high overlap

• Maintain current Beta 1
  – functionality
  – terminology where possible

• Support integration with SoaML
Background: Interactions

- Are about message flow between participants ("roles") in interactions.
- Grouping of message flow
  - including reuse of other interactions that have message flow.
- Sequencing of message flow.
- Correlation of message flow.
- Relationship between activities in process orchestration, and the interactions through which they occur.
Three Interaction Diagrams

• Currently three diagrams about the same topic (compare to processes).

• Message Flow Sequencing
  – Message flow most prominent (shown as rounded rectangles with labels for participants).
  – Choreography

• Message Flow between Participants
  – Participants most prominent (shown as large rectangles with message flow lines between them).
  – Collaboration and Conversation
Three Interaction Diagrams

Participant Centered
(Collaboration and Conversation)

Message Flow Centered
(Choreography, message flow shown as rounded rectangles)

• Any difference between Collaboration and Conversation diagrams currently?
Participant Centered (Grouping)

Possible for both Collaboration and Conversation

Possible for Conversation Only

- Only Conversation can group message flows
Participant Centered (Grouping)

- Conversation can **call** other diagrams (or have subs)—Collaborations cannot

Conversational Grouping

- Credit Agency
- Financial
- Seller
- Customer

Credit Score
Purchase

Credit Request
Response
Participant Centered (Correlation)

- Only Conversation can specify correlation. Other diagrams must associate with conversation.
Participant Centered (Processes)

Only Collaboration can show processes in participants:
- link message flow to activities.
- indirectly show sequence of message flow.

Collaboration only

- Only Collaboration can show processes in participants.
- link message flow to activities.
- indirectly show sequence of message flow.
<table>
<thead>
<tr>
<th></th>
<th>Collaboration</th>
<th>Conversation</th>
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</thead>
<tbody>
<tr>
<td>Participants, Messages,</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Message Flow</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Participant-prominent</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Notation</td>
<td></td>
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<tr>
<td>Sequencing Message Flow</td>
<td>(through processes in participants)</td>
<td></td>
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<tr>
<td>Grouping Message Flow</td>
<td></td>
<td>X</td>
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<tr>
<td>(calls, subs, and tasks)</td>
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<tr>
<td>Processes in Participants</td>
<td>X</td>
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<tr>
<td>Correlating Messages and</td>
<td>(through attached conversation)</td>
<td>X</td>
</tr>
<tr>
<td>Process Instances</td>
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Merger: Simplify, Preserve Capabilities

- Merge participant centered diagrams into one diagram.
  - Combine the capabilities of the existing Collaboration and Conversation diagrams into one diagram called Collaboration.
- Prominent participant notation.
- Grouping message flow
  - Diagram reuse (referenced/called)
  - Ownership / “sub”.
- Process in participants.
- Correlation for message flow.
# Participant Centered (Merged)

<table>
<thead>
<tr>
<th></th>
<th>Beta 1 Collaboration</th>
<th>Conversation</th>
<th>Merged Collaboration</th>
</tr>
</thead>
<tbody>
<tr>
<td>Participants, Messages, Message Flow</td>
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<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Participant-prominent Notation</td>
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<td>Correlating Messages and Process Instances</td>
<td>(through attached conversation)</td>
<td>X</td>
<td>X</td>
</tr>
</tbody>
</table>
Other Capabilities To Preserve

• Correlation on message flow in Choreography.
  – Currently done by associating to Conversation

• Choreography shown on Collaboration.
  – Currently done by associating Participants and Message Flow.
Details of Proposed Merger

• Interaction Specification
• Callable Element
• Conversation
• Collaboration
• Choreography
• Correlation
Interaction Specifications

• Are callable
  – because all remaining interaction diagrams are callable.

• Can have correlation
  – to simplify the metamodel.
  – simplify correlation on Choreography.

• Can have Conversations
  – Conversations visualized as hexagons in Collaboration
Interaction Specifications

Old Metamodel

New Metamodel
Interaction Specifications

- Removed the Conversation diagram element (was removed from model in merger)
- Interaction Specification is now a callable element. Since Collaboration now needs to be callable, the generalization was moved. (all the other Interaction Specifications were already callable)
- Removed RootElement and Process from diagram (not from the model)
- Message Flow Association, Participant Association, and Conversation Association add to Interaction Specification (they were all common to both Choreography and Collaboration)
- Added Correlation Key to diagram
  - Correlation Key is now contained by Interaction Specification. This means that Collaboration, Global Conversation, Choreography, and the Global Choreography Task can have a Correlation Key, which would apply to all the Message Flow in that Interaction Specification.
- Interaction Specification now contains Conversations (and subclasses). Thus, Conversations are a part of Collaborations and Choreographies. They are only visualized in Collaborations
Callable Element

• Global Choreography Task and Global Conversation Task are now specializations of Choreography and Collaboration (respectively)
  – Constrained not to have sub elements (e.g., Choreography Activities or Conversations)
  – Simplifies model and reduces text constraints (e.g., call references can be specific)
Callable Element

Old Metamodel

New Metamodel
Removed Conversation diagram from model (which was removed with the merger).

Interaction Specification became a sub-type of Callable Element

Collaboration became a sub-type of Interaction Specification, and is thus, a Callable Element

The Global Choreography Task is now a subclass of Choreography, moved from Interaction Specification. As a subclass of Choreography, it has a restriction that it cannot have any Choreography flow elements (it must be atomic—basically it is an empty Choreography)
  - The Call Choreography Activity can now directly reference Choreography instead of Callable Element (which required text explanation that it only called Choreographies)

The Global Conversation is now a subclass of Collaboration, moved from Interaction Specification. As a subclass of Collaboration, it has a restriction that it cannot have any Sub-Conversations (it cannot be nested—it must be atomic)
  - The Call Conversation can now directly reference Collaboration instead of Callable Element (which required text explanation that it only called Collaborations (Conversations))
Conversation

- Notated as hexagons in the merged Collaboration diagram.
- Group message flow, but are no longer a separate diagram
  - compare to Activity and Process.
- Can call other Collaborations.
- Can specify correlation.
- Merge “tasks” and “subs”
  - Distinguished by whether contents have further nesting.
- Can be used in Choreography without notation.
Conversation

- No longer a separate diagram—embedded into Interaction Specification. Thus, the main class, Conversation, was removed
- Changed Global Communication to Global Conversation
  - The Global Conversation is now a subclass of Collaboration, moved from Interaction Specification. As a subclass of Collaboration, it has a restriction that it cannot have any Sub-Conversations (it cannot be nested—it must be atomic)
- Changed Communication to Conversation. The term is taken from the deleted Conversation diagram and removes a potential confusing term
- Removed Correlation details from diagram (not from the model)
- CorrelationKey association moved to Conversation element and now 0..*
  - Now Call Conversation also has a key.
  - Now Conversation can have more than one Key
- All Interaction Specifications now have a Correlation Key
Collaboration

• Contain conversations to group message flow.
  – Inherited from Interaction Specification
• Preserves other Beta 1 functionality.
• Now a superset of Beta 1 Collaboration and Conversation capabilities
Old Metamodel – Collaboration

New Metamodel – Collaboration

Old Metamodel – Conversation

Collaboration
Collaboration

- Change Collaboration to being a Callable Element (through Interaction Specification)
- A Collaboration can be called from a CallConversation
- Added ConversationNode and its subtypes and associations (through Interaction Specification)
- The Collaboration can now have its own Correlation Keys (through Interaction Specification). This replaces the key that was in the Conversation diagram element
- Message Flow Association and Conversation Association moved to Interaction Specification (still a part of Collaboration)
- Removed direct containment of Conversations (the diagram, which was removed)
- Fixed missing association from Participant to Process (just an editorial issue)
- Other changes described in next section
Possible Collaborations

New Combination
Choreography

- Can have conversations
  - no notation.
  - Inherited from Interaction Specification
- ConversationAssociation no longer needed.
  - Correlation specified on whole Choreography and/or conversations in it.
Choreography

Old Metamodel

New Metamodel
- Removed Conversation (Diagram) from the model—this is removed from the model through the merger
- Changed containment multiplicity of CallChoreographyActivity to ParticipantAssociation from * to 0..1 (new issue?) – i.e., a given ParticipantAssociation can only be contained in one CallChoreographyActivity
- Changed multiplicity of Participant to Global Choreography Task from * to 1. (only one Participant can be initiating for a given Interaction Specification—new issue?)
- Added Collaboration to diagram (was already in model)
- Message Flow Association and Conversation Association moved to Interaction Specification (still a part of Choreography)
- The containment of a Conversation (diagram) in Choreography was replaced with the containment of a Conversation (hexagon) through Interaction Specification. But these local Conversations are not displayed in the diagram
- The Global Choreography Task is now a subclass of Choreography, moved from Interaction Specification. As a subclass of Choreography, it has a restriction that it cannot have any Choreography flow elements (it must be atomic—basically it is an empty Choreography)
Within FTF Scope

• Significantly simplifies
  – implementation
  – training and usage
• Basis for alignment with another standard
  – SoaML
• No functionality or notation change.
• Remaining terminology consistent with Beta 1.