Jaml: Complex Constructors

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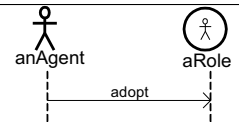
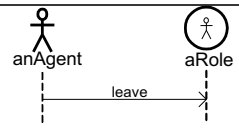
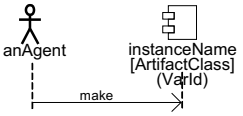
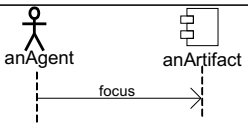
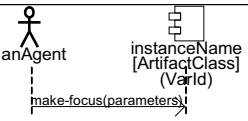
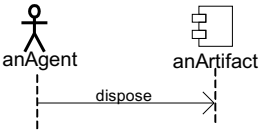
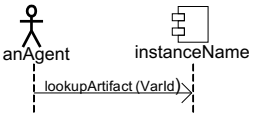
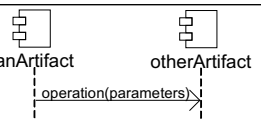
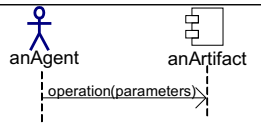
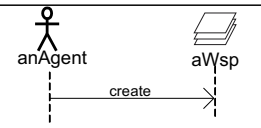
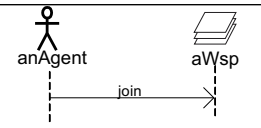
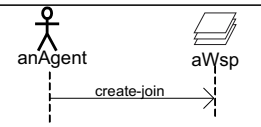
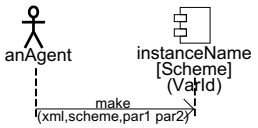
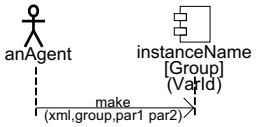
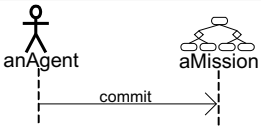
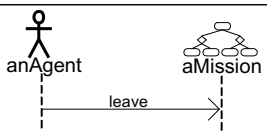
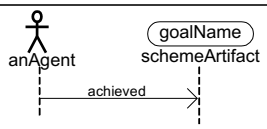
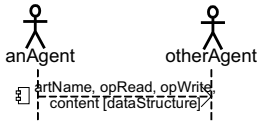
1. Interaction diagram complex constructors

Action	Notation	Semantics
Adopt a role		It relates an agent instance with a role instance. The agent adopts a role acquiring assigned responsibilities and rights.
Leave a role		It relates an agent instance with a role instance, and represents the declination of a role adoption.
Make artifact		It represents the creation of an artifact. The artifact instance should include the name of the artifact specification class. The name of instance, the variable to store the artifact identification and parameters are optional.
Focus artifact		An agent instance focuses an artifact so that the agent instance receives the observable property changes as new beliefs.
Make and focus		Actions performed over artifacts can be grouped as long as the execution ordering is possible for suitable performing.
Dispose artifact		It represents the deletion of an artifact.
Lookup artifact		Given the name of an artifact instance, the lookup operation returns the artifact identification which is stored in VarId.
Link operation execution		An artifact instance can request a service to another artifact performing operations of the artifact link interface.

Action	Notation	Semantics
Artifact service request		It refers to the execution of an artifact operation by an agent instance in order to ask for a service.
Create workspace		It represents the creation of a workspace by an agent instance. This notation is introduced in order to facilitate diagram reading.
Join workspace		Once a workspace is created, agents can join it so that they can perform actions of the workspace artifacts.
Create and join		Actions can be grouped in a single interaction as long as the execution order is possible (e.g. first, creating a workspace then joining the workspace.
Make scheme artifact		It represents the creation of the scheme organisational artifact. The artifact instance name, the organisation specification, the scheme name, and the variable that will store the artifact identification may be specified.
Make group artifact		This operation represents the creation of the group artifact. The artifact instance name, the organisation specification, group parameters, and the variable that will store the artifact identification may be specified.
Commit a mission		It represents that an agent commits to a mission either it is obligated or permitted.
Leave a mission		It represents that an agent leaves the mission.
Achieve goal		It represents the goal achievement. It may include the name of the scheme artifact that administers organisational goals.
Indirect agent communication		Indirect communication by artifacts includes the name of the artifact through which communication takes place, the operation name used to send/write the content, the operation name used to receive/read the message, and the content. The content can be a single text (enclosed within quotes), a variable, or a data structure (e.g. an XML file). If the content is a variable, its name must start with a capital letter. In case of a data structure, the structure type can be specified into square brackets.

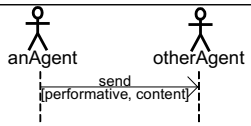
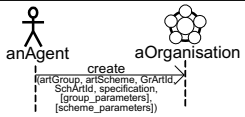
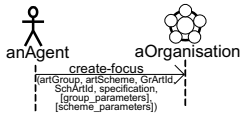
Action	Notation	Semantics
Send a message		It represents a message communication between agents. A message includes a perfomative and a content.
Create organisation		It represents the creation of an organisation.
Create organisation and focus organisational artifacts		The agent creates the organisation and then, it focuses the organisational artifacts (group and scheme).

Table 1: Interaction diagram: actions

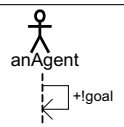
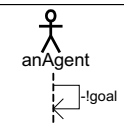
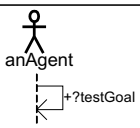
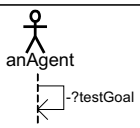
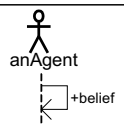
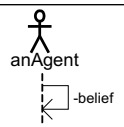
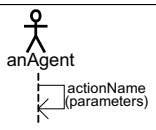
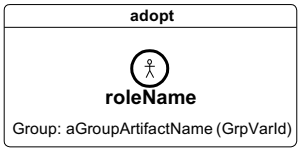
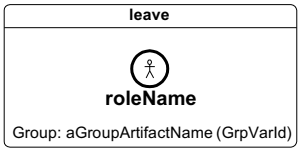
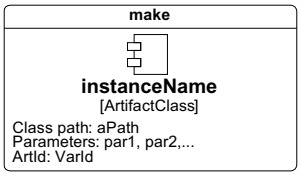
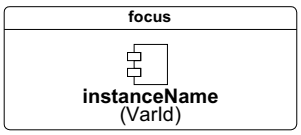
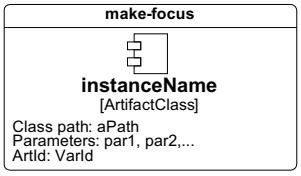
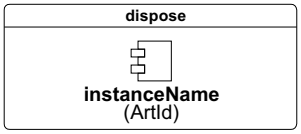
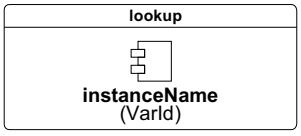
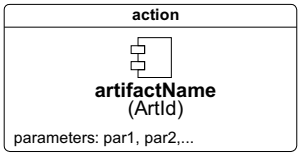
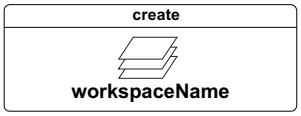
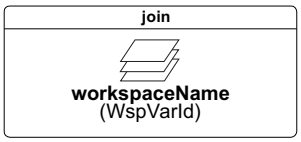
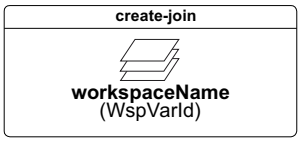
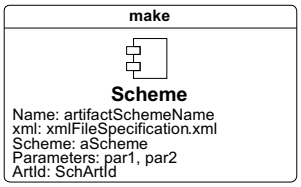
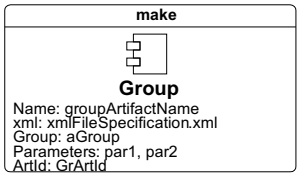
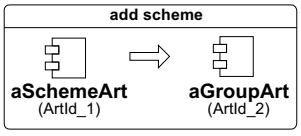
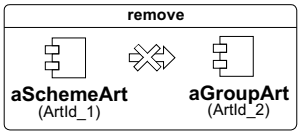
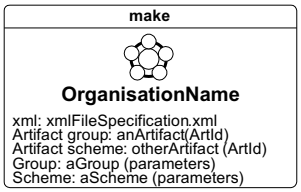
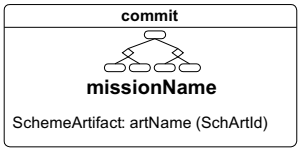
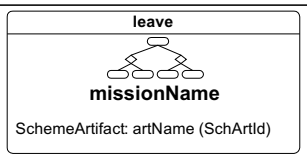
Action	Notation	Semantics
Add a goal		It represents the addition of a new goal the agent should achieve.
Delete a goal		It represents the deletion of a goal.
Test a goal		It represents the execution of a test goal.
Delete a goal		It represents the deletion of a test goal.
Add mental note		Agents can add beliefs to remember some information that agents need to remember, i.e. a mental note. It represent the addition of a mental note.
Delete a belief		It represents a belief deletion in the agent' belief base.
Action execution		It represents the invocation of an agent internal/external action.

Table 2: Interaction diagram: self interactions

2. Plan diagram complex constructors

Constructor	Notation	Semantics
Adopt role		It represents the adoption of a role that belongs to a group managed by the artifact aGroupArtifactName or number identification stored in the GrVarId variable.
Leave role		It represents the rejection of the role roleName that belongs to the group managed by the artifact aGroupArtifactName or number identification stored in the GrVarId variable.
Make artifact		It represents the creation of an artifact from the ArtifactClass class. Name, class path, parameters, and ArtId are optional. Name specifies the name of the artifact instances. Class path is used when the class specification file is not in the default path; and ArtId is a variable in which the artifact identification is stored.
Focus artifact		Changes of artifact observable properties are communicated to all agents that perform a focus operation over it. To perform a focus action, the artifact instance name or the variable that stores the artifact identification can be used.
Artifact grouped actions: make and focus		Common actions can be grouped as long as the execution order is possible for a suitable execution.
Dispose		It represent the deletion of the artifact instance identified by instanceName name or the identification number stored in the VarId variable.
Lookup artifact		The lookupArtifact operation allows agents to discover the identifier of an artifact instance by means of its logic name. Given an artifact name, the lookup operation stores in the ArtId variable the artifact identification associated to the artifact name.
Artifact service request		It refers to the execution of an artifact operation by an agent in order to ask for a service.
Create a workspace		It represents the creation of a new workspace.

Constructor	Notation	Semantics
Join a workspace		By default each node has a default workspace to which agents are joined, but agents are able to join additional workspaces. It represents the join of the agent to workspaceName or the workspace which identification number is stored in the WspVarId variable.
Workspace grouped actions: create and join		It represents the execution of two operations: create a workspace, and then, join this workspace.
Make scheme artifact		This operation represents the creation of the scheme artifact. To create this artifact, its name, an XML organisation specification, the scheme name, and the variable that will store the artifact identification are specified. Not all parameters need to be detailed, avoided parameters can be specified during the code generation process.
Make group artifact		This operation represents the creation of the group artifact. To create this artifact, its name, an XML organisation specification, group parameters, and the variable that will store the artifact identification are specified.
Add scheme		Once the scheme artifact is created, it need to be added to group artifact in order to manage the organisational behaviour.
Remove scheme		It represents the opposite operation of add scheme.
Make organisation		It represents the following operations: make a group artifact, make a scheme artifact, and add the scheme to the group artifact in order to the last manages the organisation behaviour.
Commit mission		It represents that an agent commits with a mission either it is obligated or permitted.
Leave mission		It represents that an agent leaves a mission.

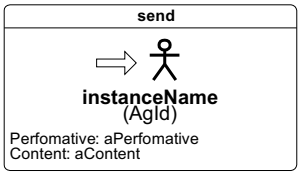
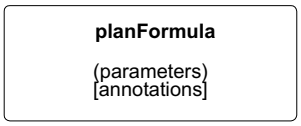
Constructor	Notation	Semantics
Goal achieved		The goal has been achieved by the agent so that the agent informs about it.
Send message		It represents a message communication between agents. A message includes a perfomative and a content.
Generic plan sentence		It represents a generic sentence such as the execution of an internal or external action, the relational expression evaluation, or anything else that cannot be represented by previous constructors.

Table 3: Plan diagram constructors