

Eiffel Event Protocol Conformance

Introduction

It's sometime hard to answer questions like

- What should we call this new event type?
- What event types should we use in this new area?
- How should this new event type be related to this other event type? I.e. what link types should it have?
- What properties should a new event have?

We seem to lack some guidelines on event naming and event structures

The Eiffel Events

- EiffelActivityTriggeredEvent (ActT)
- EiffelActivityCanceledEvent (ActC)
- EiffelActivityStartedEvent (ActS)
- EiffelActivityFinishedEvent (ActF)
- EiffelAnnouncementPublishedEvent (AnnP)
- EiffelArtifactCreatedEvent (ArtC)
- EiffelArtifactDeployedEvent (ArtD)
- EiffelArtifactPublishedEvent (ArtP)
- EiffelArtifactReusedEvent (ArtR)
- EiffelCompositionDefinedEvent (CD)
- EiffelConfidenceLevelModifiedEvent (CLM)
- EiffelEnvironmentDefinedEvent (ED)
- EiffelFlowContextDefinedEvent (FCD)
- EiffelIssueDefinedEvent (ID)
- EiffelIssueVerifiedEvent (IV)
- EiffelSourceChangeCreatedEvent (SCC)
- EiffelSourceChangeSubmittedEvent (SCS)
- EiffelTestCaseTriggeredEvent (TCT)
- EiffelTestCaseCanceledEvent (TCC)
- EiffelTestCaseStartedEvent (TCS)
- EiffelTestCaseFinishedEvent (TCF)
- EiffelTestExecutionRecipeCollectionCreatedEvent (TERCC)
- EiffelTestSuiteStartedEvent (TSS)
- EiffelTestSuiteFinishedEvent (TSF)

The Eiffel Events Dissected

- Eiffel**Activity***Triggered*Event (ActT)
- Eiffel**Activity***Canceled*Event (ActC)
- Eiffel**Activity***Started*Event (ActS)
- Eiffel**Activity***Finished*Event (ActF)
- Eiffel**Announcement***Published*Event (AnnP)
- Eiffel**Artifact***Created*Event (ArtC)
- Eiffel**Artifact***Deployed*Event (ArtD)
- Eiffel**Artifact***Published*Event (ArtP)
- Eiffel**Artifact***Reused*Event (ArtR)
- Eiffel**Composition***Defined*Event (CD)
- Eiffel**ConfidenceLevel***Modified*Event (CLM)
- Eiffel**Environment***Defined*Event (ED)
- Eiffel**FlowContext***Defined*Event (FCD)
- Eiffel**Issue***Defined*Event (ID)
- Eiffel**Issue***Verified*Event (IV)
- Eiffel**SourceChange***Created*Event (SCC)
- Eiffel**SourceChange***Submitted*Event (SCS)
- Eiffel**TestCase***Triggered*Event (TCT)
- Eiffel**TestCase***Canceled*Event (TCC)
- Eiffel**TestCase***Started*Event (TCS)
- Eiffel**TestCase***Finished*Event (TCF)
- Eiffel**TestExecutionRecipeCollection***Created*Event (TERCC)
- Eiffel**TestSuite***Started*Event (TSS)
- Eiffel**TestSuite***Finished*Event (TSF)

The Eiffel Events Dissected with data members

Bold Green – subject (related to)
Italic Red – predicate (related to)

Eiffel**ActivityTriggered**Event (ActT)
name, categories, triggers, executionType

Eiffel**ActivityCanceled**Event (ActC)
reason

Eiffel**ActivityStarted**Event (ActS)
executionUri, liveLogs

Eiffel**ActivityFinished**Event (ActF)
outcome, persistentLogs

Eiffel**AnnouncementPublished**Event (AnnP)
heading, body, uri, severity

Eiffel**ArtifactCreated**Event (ArtC)
identity, fileInformation, buildCommand, requiresImplementation, dependsOn, implements, name

Eiffel**ArtifactDeployed**Event (ArtD)
description, uri

Eiffel**ArtifactPublished**Event (ArtP)
locations

Eiffel**ArtifactReused**Event (ArtR)
no members

Eiffel**CompositionDefined**Event (CD)
name, version

Eiffel**ConfidenceLevelModified**Event (CLM)
name, value, issuer

Eiffel**EnvironmentDefined**Event (ED)
name, version, image, host, uri

Eiffel**FlowContextDefined**Event (FCD)
product, project, program, track, version

Eiffel**IssueDefined**Event (ID)
type, tracker, id, uri, title

Eiffel**IssueVerified**Event (IV)
no members

Eiffel**SourceChangeCreated**Event (SCC)
author, change, gitIdentifier, svnIdentifier, ccCompositIdentifier, hgIdentifier

Eiffel**SourceChangeSubmitted**Event (SCS)
submitter, gitIdentifier, svnIdentifier, ccCompositIdentifier, hgIdentifier

Eiffel**TestCaseTriggered**Event (TCT)
testCase, recipeld, triggers, executionType, parameters

Eiffel**TestCaseCanceled**Event (TCC)
reason

Eiffel**TestCaseStarted**Event (TCS)
executor, liveLogs

Eiffel**TestCaseFinished**Event (TCF)
outcome, persistentLogs

Eiffel**TestExecutionRecipeCollectionCreated**Event (TERCC)
selectionStrategy, batchesUri, batches

Eiffel**TestSuiteStarted**Event (TSS)
name, categories, types, liveLogs

Eiffel**TestSuiteFinished**Event (TSF)
outcome, persistentLogs

The Eiffel Events Dissected with link types

- Eiffel**ActivityTriggered**Event (ActT)
 - CAUSE, CONTEXT, FLOW_CONTEXT, PRECURSOR
- Eiffel**ActivityCanceled**Event (ActC)
 - ACTIVITY_EXECUTION, CAUSE, CONTEXT, FLOW_CONTEXT
- Eiffel**ActivityStarted**Event (ActS)
 - ACTIVITY_EXECUTION, CAUSE, CONTEXT, FLOW_CONTEXT, PREVIOUS_ACTIVITY_EXECUTION
- Eiffel**ActivityFinished**Event (ActF)
 - ACTIVITY_EXECUTION, CAUSE, CONTEXT, FLOW_CONTEXT
- Eiffel**AnnouncementPublished**Event (AnnP)
 - CAUSE, CONTEXT, FLOW_CONTEXT, MODIFIED_ANNOUNCEMENT
- Eiffel**ArtifactCreated**Event (ArtC)
 - CAUSE, COMPOSITION, CONTEXT, ENVIRONMENT, FLOW_CONTEXT, PREVIOUS_VERSION
- Eiffel**ArtifactDeployed**Event (ArtD)
 - ARTIFACT, CAUSE, CONFIGURATION, CONTEXT, ENVIRONMENT, FLOW_CONTEXT
- Eiffel**ArtifactPublished**Event (ArtP)
 - ARTIFACT, CAUSE, CONTEXT, FLOW_CONTEXT
- Eiffel**ArtifactReused**Event (ArtR)
 - CAUSE, COMPOSITION, CONTEXT, FLOW_CONTEXT, REUSED_ARTIFACT
- Eiffel**CompositionDefined**Event (CD)
 - CAUSE, CONTEXT, ELEMENT, FLOW_CONTEXT, PREVIOUS_VERSION
- Eiffel**ConfidenceLevelModified**Event (CLM)
 - CAUSE, CONTEXT, FLOW_CONTEXT, SUBJECT, SUB_CONFIDENCE_LEVEL
- Eiffel**EnvironmentDefined**Event (ED)
 - CAUSE, CONTEXT, FLOW_CONTEXT, PREVIOUS_VERSION, RUNTIME_ENVIRONMENT
- Eiffel**FlowContextDefined**Event (FCD)
 - CAUSE, CONTEXT, FLOW_CONTEXT
- Eiffel**IssueDefined**Event (ID)
 - CAUSE, CONTEXT, FLOW_CONTEXT
- Eiffel**IssueVerified**Event (IV)
 - CAUSE, CONTEXT, ENVIRONMENT, FAILED_ISSUE, FLOW_CONTEXT, INCONCLUSIVE_ISSUE, IUT, SUCCESSFUL_ISSUE, VERIFICATION_BASIS
- Eiffel**SourceChangeCreated**Event (SCC)
 - BASE, CAUSE, CONTEXT, DERESOLVED_ISSUE, FLOW_CONTEXT, PARTIALLY_RESOLVED_ISSUE, PREVIOUS_VERSION, RESOLVED_ISSUE
- Eiffel**SourceChangeSubmitted**Event (SCS)
 - CAUSE, CHANGE, CONTEXT, FLOW_CONTEXT, PREVIOUS_VERSION
- Eiffel**TestCaseTriggered**Event (TCT)
 - CAUSE, CONTEXT, FLOW_CONTEXT, IUT, PRECURSOR
- Eiffel**TestCaseCanceled**Event (TCC)
 - CAUSE, CONTEXT, FLOW_CONTEXT, TEST_CASE_EXECUTION
- Eiffel**TestCaseStarted**Event (TCS)
 - CAUSE, CONTEXT, ENVIRONMENT, FLOW_CONTEXT, TEST_CASE_EXECUTION
- Eiffel**TestCaseFinished**Event (TCF)
 - CAUSE, CONTEXT, FLOW_CONTEXT, TEST_CASE_EXECUTION
- Eiffel**TestExecutionRecipeCollectionCreated**Event (TERCC)
 - CAUSE, CONTEXT, FLOW_CONTEXT
- Eiffel**TestSuiteStarted**Event (TSS)
 - CAUSE, CONTEXT, FLOW_CONTEXT
- Eiffel**TestSuiteFinished**Event (TSF)
 - CAUSE, CONTEXT, FLOW_CONTEXT, TEST_SUITE_EXECUTION

Open Discussion!

- What are your reflections on the non-conformance described?

The Eiffel Events Dissected with link types

Confidence Levels vs Issues Verified - Basis & Values

- Eiffel**ActivityTriggered**Event (ActT)
 - CAUSE, CONTEXT, FLOW_CONTEXT, PRECURSOR
- Eiffel**ActivityCanceled**Event (ActC)
 - ACTIVITY_EXECUTION, CAUSE, CONTEXT, FLOW_CONTEXT
- Eiffel**ActivityStarted**Event (ActS)
 - ACTIVITY_EXECUTION, CAUSE, CONTEXT, FLOW_CONTEXT, PREVIOUS_ACTIVITY_EXECUTION
- Eiffel**ActivityFinished**Event (ActF)
 - ACTIVITY_EXECUTION, CAUSE, CONTEXT, FLOW_CONTEXT
- Eiffel**AnnouncementPublished**Event (AnnP)
 - CAUSE, CONTEXT, FLOW_CONTEXT, MODIFIED_ANNOUNCEMENT
- Eiffel**ArtifactCreated**Event (ArtC)
 - CAUSE, COMPOSITION, CONTEXT, ENVIRONMENT, FLOW_CONTEXT, PREVIOUS_VERSION
- Eiffel**ArtifactDeployed**Event (ArtD)
 - ARTIFACT, CAUSE, CONFIGURATION, CONTEXT, ENVIRONMENT, FLOW_CONTEXT
- Eiffel**ArtifactPublished**Event (ArtP)
 - ARTIFACT, CAUSE, CONTEXT, FLOW_CONTEXT
- Eiffel**ArtifactReused**Event (ArtR)
 - CAUSE, COMPOSITION, CONTEXT, FLOW_CONTEXT, REUSED_ARTIFACT
- Eiffel**CompositionDefined**Event (CD)
 - CAUSE, CONTEXT, ELEMENT, FLOW_CONTEXT, PREVIOUS_VERSION
- Eiffel**ConfidenceLevelModified**Event (CLM)
 - CAUSE, CONTEXT, FLOW_CONTEXT, SUBJECT, SUB_CONFIDENCE_LEVEL
- Eiffel**EnvironmentDefined**Event (ED)
 - CAUSE, CONTEXT, FLOW_CONTEXT, PREVIOUS_VERSION, RUNTIME_ENVIRONMENT
- Eiffel**FlowContextDefined**Event (FCD)
 - CAUSE, CONTEXT, FLOW_CONTEXT
- Eiffel**IssueDefined**Event (ID)
 - CAUSE, CONTEXT, FLOW_CONTEXT
- Eiffel**IssueVerified**Event (IV)
 - CAUSE, CONTEXT, ENVIRONMENT, *FAILED_ISSUE*, FLOW_CONTEXT, *INCONCLUSIVE_ISSUE*, IUT, *SUCCESSFUL_ISSUE*, **VERIFICATION_BASIS**
- Eiffel**SourceChangeCreated**Event (SCC)
 - BASE, CAUSE, CONTEXT, DERESOLVED_ISSUE, FLOW_CONTEXT, PARTIALLY_RESOLVED_ISSUE, PREVIOUS_VERSION, RESOLVED_ISSUE
- Eiffel**SourceChangeSubmitted**Event (SCS)
 - CAUSE, CHANGE, CONTEXT, FLOW_CONTEXT, PREVIOUS_VERSION
- Eiffel**TestCaseTriggered**Event (TCT)
 - CAUSE, CONTEXT, FLOW_CONTEXT, IUT, PRECURSOR
- Eiffel**TestCaseCanceled**Event (TCC)
 - CAUSE, CONTEXT, FLOW_CONTEXT, TEST_CASE_EXECUTION
- Eiffel**TestCaseStarted**Event (TCS)
 - CAUSE, CONTEXT, ENVIRONMENT, FLOW_CONTEXT, TEST_CASE_EXECUTION
- Eiffel**TestCaseFinished**Event (TCF)
 - CAUSE, CONTEXT, FLOW_CONTEXT, TEST_CASE_EXECUTION
- Eiffel**TestExecutionRecipeCollectionCreated**Event (TERCC)
 - CAUSE, CONTEXT, FLOW_CONTEXT
- Eiffel**TestSuiteStarted**Event (TSS)
 - CAUSE, CONTEXT, FLOW_CONTEXT
- Eiffel**TestSuiteFinished**Event (TSF)
 - CAUSE, CONTEXT, FLOW_CONTEXT, TEST_SUITE_EXECUTION

The Eiffel Events Dissected with data members

Confidence Levels vs Issues Verified - Basis & Values

Eiffel**ActivityTriggered**Event (ActT)
name, categories, triggers, executionType

Eiffel**ActivityCanceled**Event (ActC)
reason

Eiffel**ActivityStarted**Event (ActS)
executionUri, liveLogs

Eiffel**ActivityFinished**Event (ActF)
outcome, persistentLogs

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heading, body, uri, severity

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identity, fileInformation, buildCommand, requiresImplementation, dependsOn, implements, name

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description, uri

Eiffel**ArtifactPublished**Event (ArtP)
locations

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no members

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name, version

Eiffel**ConfidenceLevelModified**Event (CLM)
name, value, issuer

Eiffel**EnvironmentDefined**Event (ED)
name, version, image, host, uri

Eiffel**FlowContextDefined**Event (FCD)
product, project, program, track, version

Eiffel**IssueDefined**Event (ID)
type, tracker, id, uri, title

Eiffel**IssueVerified**Event (IV)
no members

Eiffel**SourceChangeCreated**Event (SCC)
author, change, gitIdentifier, svnIdentifier, ccCompositelIdentifier, hgIdentifier

Eiffel**SourceChangeSubmitted**Event (SCS)
submitter, gitIdentifier, svnIdentifier, ccCompositelIdentifier, hgIdentifier

Eiffel**TestCaseTriggered**Event (TCT)
testCase, recipeld, triggers, executionType, parameters

Eiffel**TestCaseCanceled**Event (TCC)
reason

Eiffel**TestCaseStarted**Event (TCS)
executor, liveLogs

Eiffel**TestCaseFinished**Event (TCF)
outcome, persistentLogs

Eiffel**TestExecutionRecipeCollectionCreated**Event (TERCC)
selectionStrategy, batchesUri, batches

Eiffel**TestSuiteStarted**Event (TSS)
name, categories, types, liveLogs

Eiffel**TestSuiteFinished**Event (TSF)
outcome, persistentLogs

Eiffel**ConfidenceLabelDefined**Event (CLM)
&
Eiffel**ConfidenceLabelVerified**Event (CLM)

?

The Eiffel Events Dissected with link types

- Eiffel**ActivityTriggered**Event (ActT)
 - **CAUSE**, CONTEXT, FLOW_CONTEXT, PRECURSOR
- Eiffel**ActivityCanceled**Event (ActC)
 - **ACTIVITY_EXECUTION**, **CAUSE**, CONTEXT, FLOW_CONTEXT
- Eiffel**ActivityStarted**Event (ActS)
 - ACTIVITY_EXECUTION, **CAUSE**, CONTEXT, FLOW_CONTEXT, PREVIOUS_ACTIVITY_EXECUTION
- Eiffel**ActivityFinished**Event (ActF)
 - ACTIVITY_EXECUTION, **CAUSE**, CONTEXT, FLOW_CONTEXT
- Eiffel**AnnouncementPublished**Event (AnnP)
 - **CAUSE**, CONTEXT, FLOW_CONTEXT, MODIFIED_ANNOUNCEMENT
- Eiffel**ArtifactCreated**Event (ArtC)
 - **CAUSE**, COMPOSITION, CONTEXT, ENVIRONMENT, FLOW_CONTEXT, PREVIOUS_VERSION
- Eiffel**ArtifactDeployed**Event (ArtD)
 - ARTIFACT, CAUSE, CONFIGURATION, CONTEXT, ENVIRONMENT, FLOW_CONTEXT
- Eiffel**ArtifactPublished**Event (ArtP)
 - **ARTIFACT**, **CAUSE**, CONTEXT, FLOW_CONTEXT

- Eiffel**ArtifactReused**Event (ArtR)
 - CAUSE, COMPOSITION, CONTEXT, FLOW_CONTEXT, REUSED_ARTIFACT
- Eiffel**CompositionDefined**Event (CD)
 - CAUSE, CONTEXT, ELEMENT, FLOW_CONTEXT, PREVIOUS_VERSION
- Eiffel**ConfidenceLevelModified**Event (CLM)
 - CAUSE, CONTEXT, FLOW_CONTEXT, SUBJECT, SUB_CONFIDENCE_LEVEL
- Eiffel**EnvironmentDefined**Event (ED)
 - CAUSE, CONTEXT, FLOW_CONTEXT, PREVIOUS_VERSION, RUNTIME_ENVIRONMENT
- Eiffel**FlowContextDefined**Event (FCD)
 - CAUSE, CONTEXT, FLOW_CONTEXT
- Eiffel**IssueDefined**Event (ID)
 - CAUSE, CONTEXT, FLOW_CONTEXT
- Eiffel**IssueVerified**Event (IV)
 - CAUSE, CONTEXT, ENVIRONMENT, FAILED_ISSUE, FLOW_CONTEXT, INCONCLUSIVE_ISSUE, IUT, SUCCESSFUL_ISSUE, VERIFICATION_BASIS
- Eiffel**SourceChangeCreated**Event (SCC)
 - BASE, CAUSE, CONTEXT, DERESOLVED_ISSUE, FLOW_CONTEXT, PARTIALLY_RESOLVED_ISSUE, PREVIOUS_VERSION, RESOLVED_ISSUE

Rephrase "<target event> is the <source event>'s <link type>" to "<target event **subject**> is the <source event **subject**>'s <link type>"?

- The **Artifact** is the **ConfidenceLevel**'s **SUBJECT**
- The **Activity** is the **TestSuite**'s **CONTEXT**
- The **Activity Triggered** is the **Canceled Activity**'s **ACTIVITY_EXECUTION**

- Eiffel**SourceChangeSubmitted**Event (SCS)
 - CAUSE, CHANGE, CONTEXT, FLOW_CONTEXT, PREVIOUS_VERSION
- Eiffel**TestCaseTriggered**Event (TCT)
 - CAUSE, CONTEXT, FLOW_CONTEXT, IUT, PRECURSOR
- Eiffel**TestCaseCanceled**Event (TCC)
 - CAUSE, CONTEXT, FLOW_CONTEXT, TEST_CASE_EXECUTION
- Eiffel**TestCaseStarted**Event (TCS)
 - CAUSE, CONTEXT, ENVIRONMENT, FLOW_CONTEXT, TEST_CASE_EXECUTION
- Eiffel**TestCaseFinished**Event (TCF)
 - CAUSE, CONTEXT, FLOW_CONTEXT, TEST_CASE_EXECUTION
- Eiffel**TestExecutionRecipeCollectionCreated**Event (TERCC)
 - CAUSE, CONTEXT, FLOW_CONTEXT
- Eiffel**TestSuiteStarted**Event (TSS)
 - CAUSE, CONTEXT, FLOW_CONTEXT
- Eiffel**TestSuiteFinished**Event (TSF)
 - CAUSE, CONTEXT, FLOW_CONTEXT, TEST_SUITE_EXECUTION

- What is the difference between “defined”, “created” and “triggered”?
- What about “modified” – more of a status setting than a signal about something happening. ConfidenceLevel***Verified*** instead?

Some proposals

Distinguish between pure subject events and predicate events

- Eiffel**ActivityDefined**Event
 - Data members: **name**, **categories**
 - Link types: ?
- Eiffel**ActivityTriggered**
 - Data members: **triggers**, **executionType**
 - Link types: **ACTIVITY_EXECUTION**, **CAUSE**, CONTEXT, FLOW_CONTEXT, PRECURSOR
- Eiffel**ActivityStarted**Event (ActS)
 - Data members: **executionUri**, **liveLogs**
 - Link types: **ACTIVITY_EXECUTION**, **CAUSE**, CONTEXT, FLOW_CONTEXT, PREVIOUS_ACTIVITY_EXECUTION
- Eiffel**ActivityFinished**Event (ActF)
 - Data members: **outcome**, **persistentLogs**
 - Link types: **ACTIVITY_EXECUTION**, **CAUSE**, CONTEXT, FLOW_CONTEXT

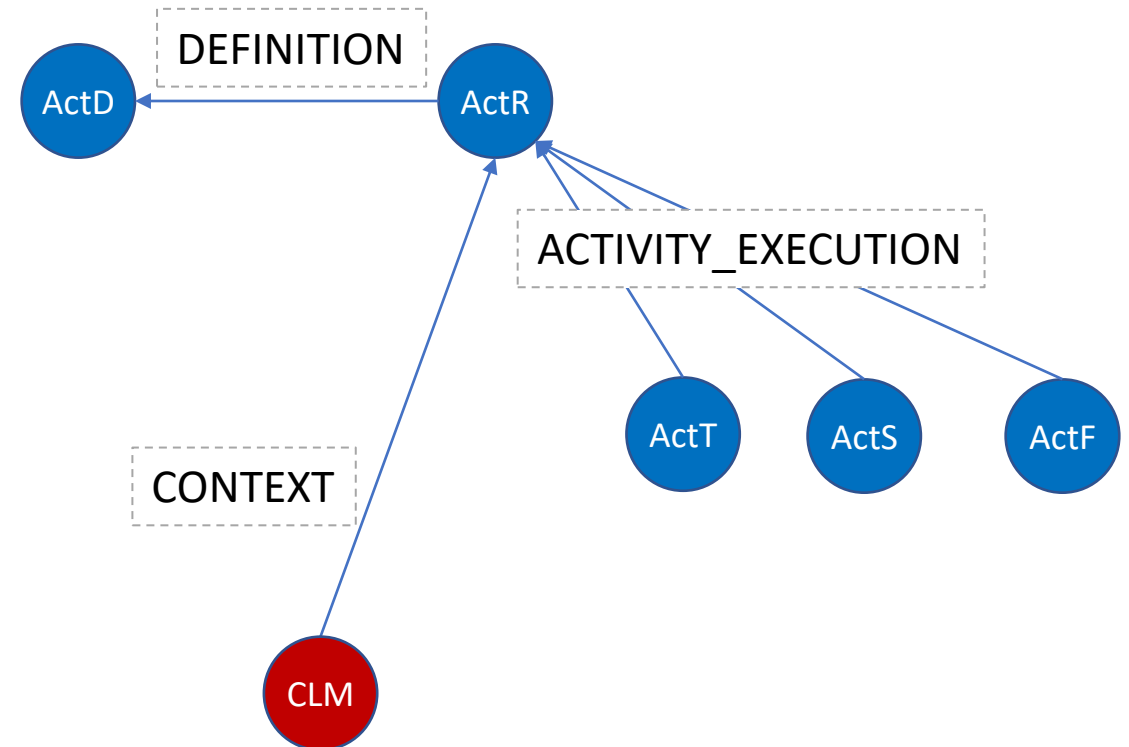
Duplicate subject definition in all events for the same subject (no definition event needed)

- Eiffel**ActivityTriggered**
 - Data members: **name**, **categories**, **triggers**, **executionType**
 - Link types: **CAUSE**, CONTEXT, FLOW_CONTEXT, PRECURSOR
- Eiffel**ActivityStarted**Event (ActS)
 - Data members: **name**, **categories**, **executionUri**, **liveLogs**
 - Link types: **ACTIVITY_EXECUTION**, **CAUSE**, CONTEXT, FLOW_CONTEXT, PREVIOUS_ACTIVITY_EXECUTION
- Eiffel**ActivityFinished**Event (ActF)
 - Data members: **name**, **categories**, **outcome**, **persistentLogs**
 - Link types: **ACTIVITY_EXECUTION**, **CAUSE**, CONTEXT, FLOW_CONTEXT

Some proposals, cont'd

Separate Execution

- Eiffel**Activity***Defined*Event
 - Data members: **name**, **categories**
 - Link types: ?
- Eiffel**Activity***Run*Event
 - Data members: *no members*
 - Link types: ?
- Eiffel**Activity***Triggered*
 - Data members: *triggers*, *executionType*
 - Link types: **ACTIVITY_EXECUTION**, *CAUSE*, CONTEXT, FLOW_CONTEXT, PRECURSOR
- Eiffel**Activity***Started*Event (ActS)
 - Data members: *executionUri*, *liveLogs*
 - Link types: **ACTIVITY_EXECUTION**, *CAUSE*, CONTEXT, FLOW_CONTEXT, PREVIOUS_ACTIVITY_EXECUTION
- Eiffel**Activity***Finished*Event (ActF)
 - Data members: *outcome*, *persistentLogs*
 - Link types: **ACTIVITY_EXECUTION**, *CAUSE*, CONTEXT, FLOW_CONTEXT



Some proposals, cont'd

- Rephrase "<target event> is the <source event>'s <link type>" to "<target event **subject**> is the <source event **subject**>'s <link type>"
 - The **Artifact** is the **ConfidenceLevel**'s SUBJECT
 - The **ActivityExecution** is the **TestSuite**'s CONTEXT
- Causal relations between event types are (often) between their predicates, while "product relations" are often between their subjects

Some proposals, cont'd

- IV vs CLM. How to make it conformant?

Some proposals, cont'd

- Dimensions
 - Execution dimension – ActivityExecution, TestSuiteExecution, TestCaseExecution
 - Triggered, Started, Canceled, Finished
 - Runtime dimension – Artifact, Issue, SourceChange
 - Created, Published, Abandoned, Verified
 - Static dimension – FlowContext,
 - Defined

Retriggering and Reruns

- How to express a retriggering/rerun of a pipeline? Today linking SCC/SCS to existing ActT, ActS, etc and tomorrow with ActD, ActC, ActT, etc? Pros/cons from a producer/consumer perspective?
- See also [Issue #246](#)