Annex C: Concrete Syntax (Graphical Notations) for the Argumentation Metamodel

(informative)

C.1 ArgumentPackage

The concrete syntax for ArgumentPackage is defined in Figure C1.

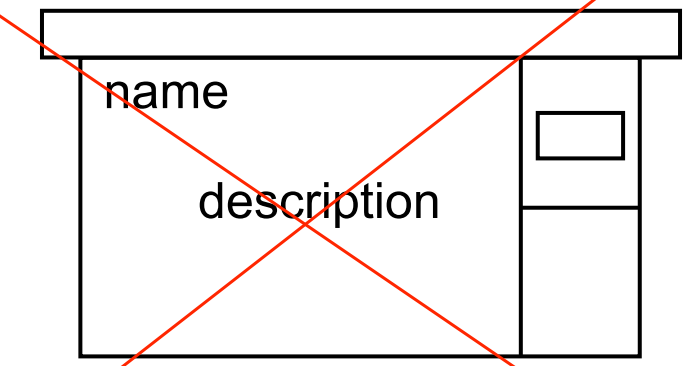


Figure C1 - Concrete Syntax for ArgumentPackage

C.2 ArgumentPackageInterface

The concrete syntax for ArgumentPackageInterface is defined in Figure C2.

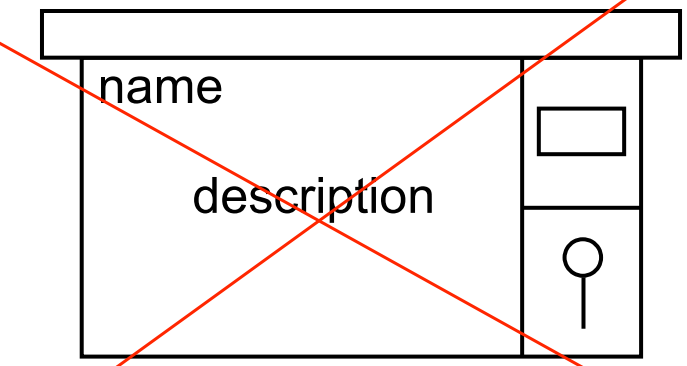


Figure C2 - Concrete Syntax for ArgumentPackageInterface

C.3 ArgumentPackageBinding

The concrete syntax for ArgumentPackageBinding is defined in Figure C3.

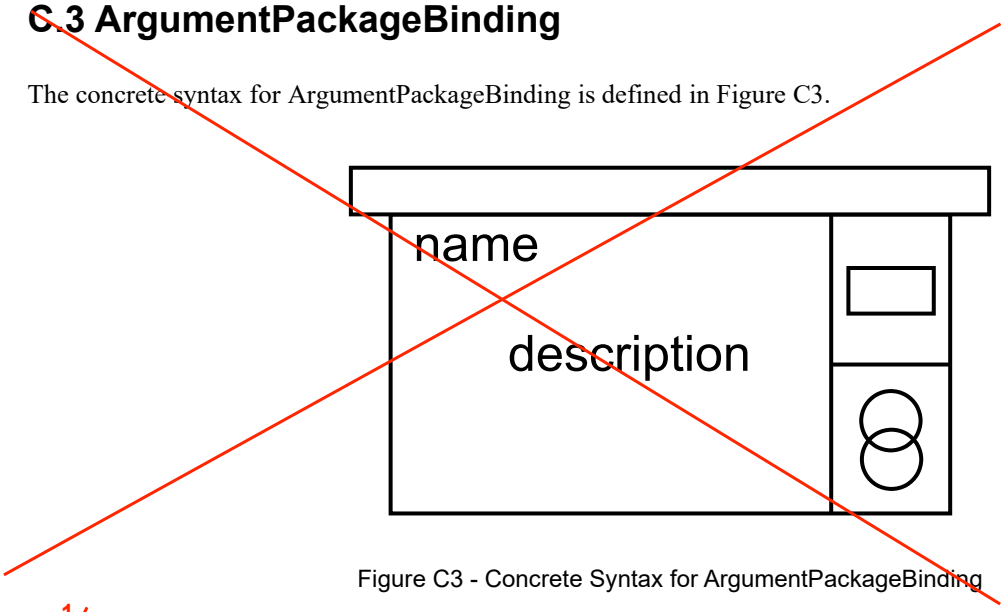


Figure C3 - Concrete Syntax for ArgumentPackageBinding

C.4 ArtifactReference

The concrete syntax for ArtifactReference is defined in Figure C4.

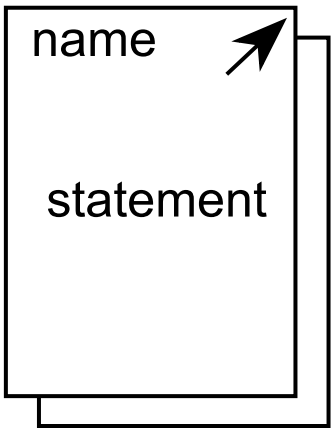


Figure C4 - Concrete Syntax for ArtifactReference

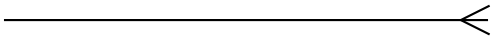
C.5 The +metaClaim reference

Subject

Claims can use subject AssociationEnd to reference a SACMElement as the subject of the Claim

+metaClaim can be used as references Claims concerning (i.e., about) the Assertion (e.g., regarding the confidence in the Assertion). The concrete syntax for the +metaClaim reference is defined in Figure C5.

Subject



Subject

Figure C5 – Concrete Syntax for +metaClaim reference

Subject

Examples of using the +metaClaim reference can be found in Appendix D.

C.6 Claim

By default the AssertionDeclaration of a Claim is set to asserted, the concrete syntax for an asserted Claim is defined in Figure C6.

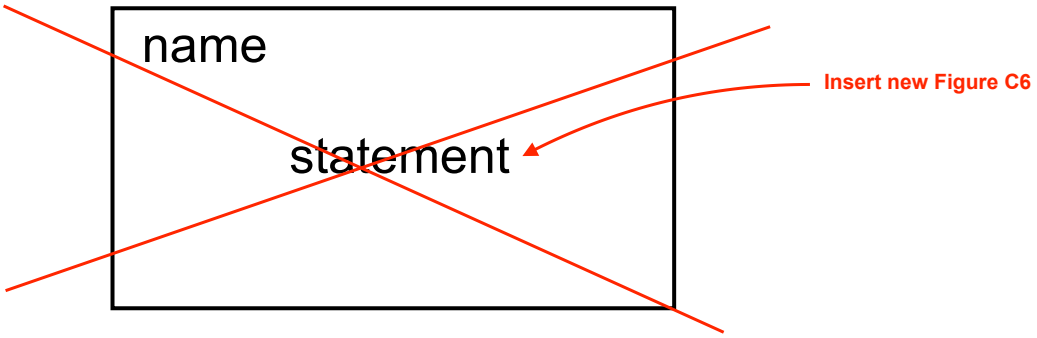


Figure C6 - Concrete Syntax for asserted Claim

An assumed Claim indicates that an assumption is declared without any supporting evidence or argumentation. The concrete syntax for an assumed Claim is defined in Figure C7.

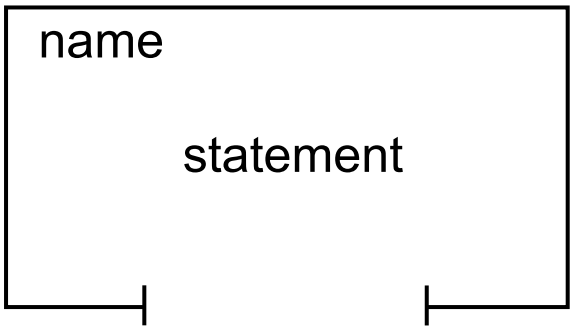


Figure C7 - Concrete Syntax for assumed Claim

A needsSupport Claim indicates that a Claim is declared as requiring further evidence or argumentation. The concrete syntax for a needsSupport Claim is defined in Figure C8.

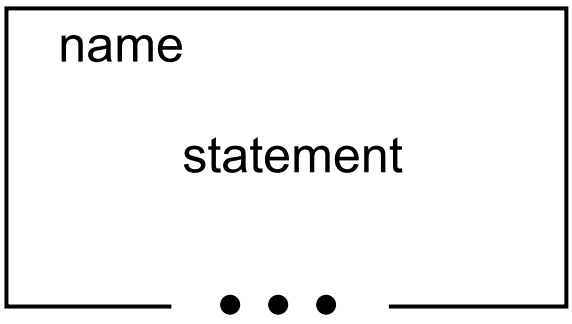
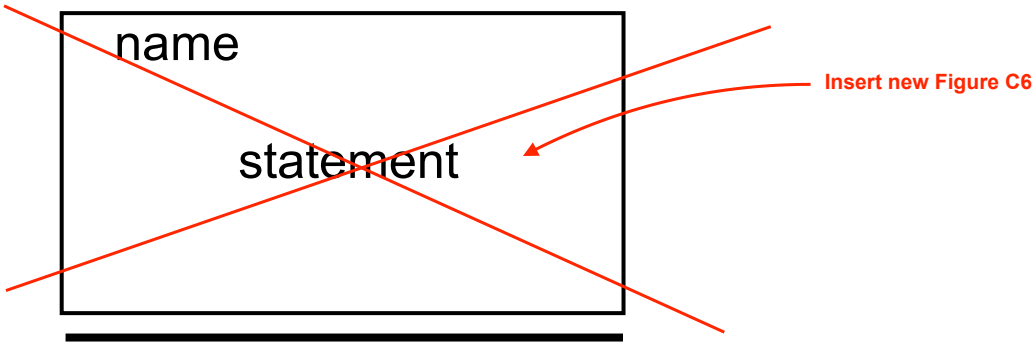


Figure C8 - Concrete Syntax for needsSupport Claim

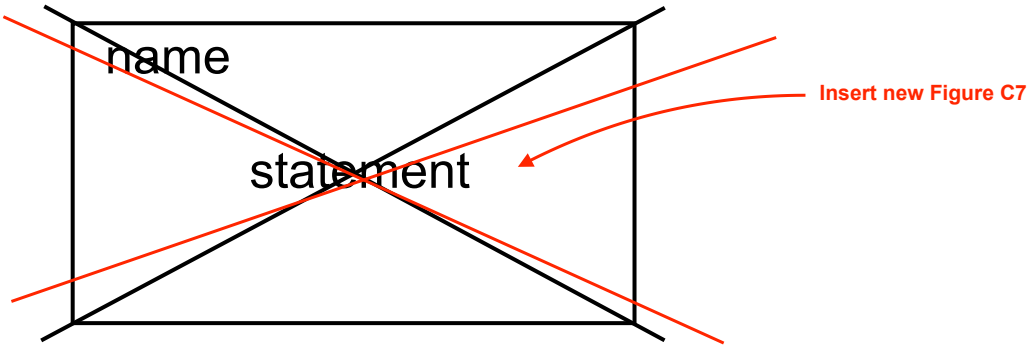
An axiomatic Claim indicates that a Claim is intentionally declared to be axiomatically true. The concrete syntax of an axiomatic Claim is defined in Figure C9.



6

Figure C9 - Concrete Syntax for axiomatic Claim

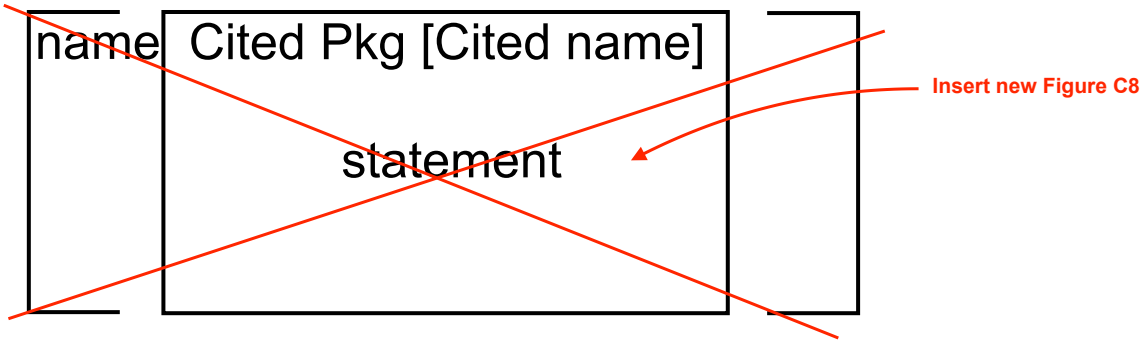
A defeated Claim indicates that a Claim is defeated by counter-evidence. The concrete syntax of a defeated Claim is defined in Figure C10. 7



7

Figure C10 - Concrete Syntax for defeated Claim

An asCited Claim indicates that a Claim cites another claim and is hence supported by the cited Claim. The concrete syntax of an asCIted Claim is defined in Figure C11. 8



8

Figure C11 - Concrete Syntax for asCited Claim

An abstract Claim indicates that a Claim is part of a pattern or a template. The concrete syntax for an Abstract Claim is to render the Claim with dash lines, Figure C12 is an example of an abstract asserted Claim.

9

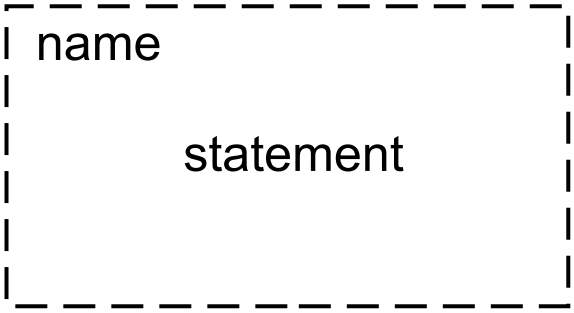


Figure C12 - Concrete Syntax for abstract asserted Claim

For other types of Claims, they should be rendered in dash lines, should their +isAbstract attribute is true.

C.7 ArgumentReasoning

The concrete syntax of ArgumentReasoning is defined in C13 (note: the right hand side of the notation).

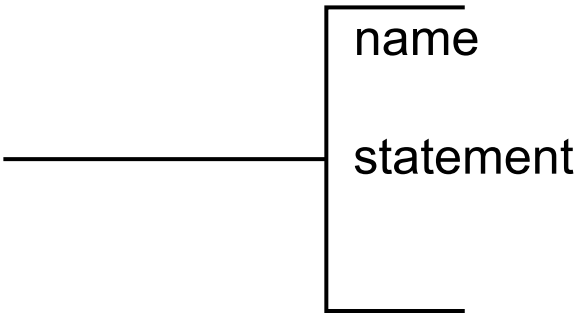


Figure C13 - Concrete Syntax for ArgumentReasoning

C.8 AssertedInference

The concrete syntax of AssertedInference is defined in Figure C14, where the dot represents the AssertedInference instance, the edge without an arrow represents the +source reference of the AssertedInference, and the edge with an arrow represents the +target reference of the AssertedInference.

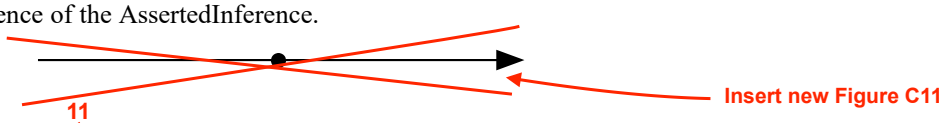


Figure C14 - Concrete Syntax for asserted AssertedInference

An assumed AssertedInference indicates that the inference is assumed without any supporting evidence or argumentation. The concrete syntax of an assumed AssertedInference is defined in Figure C15 (note: the change is applied to the +target reference edge of an AssertedInference).

Figure C15 - Concrete Syntax for assumed AssertedInference

A needsSupport AssertedInference indicates that the inference is declared as requiring further evidence or argumentation. The concrete syntax of a needsSupport AssertedInference is defined in Figure 16 (note: the change is applied to the +target reference edge of an AssertedInference).

Figure C16 - Concrete Syntax for needsSupport AssertedInference

An axiomatic AssertedInference indicates that the inference is declared to be axiomatically true. The concrete syntax of an axiomatic AssertedInference is defined in Figure C17 (note: the change is applied to the +target reference edge of an AssertedInference).

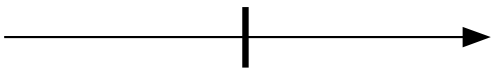


Figure C17 - Concrete Syntax for axiomatic AssertedInference

A defeated AssertedInference indicates that the inference is defeated by counter-evidence. The concrete syntax of a defeated AssertedInference is defined in Figure C18 (note: the change is applied to the +target reference edge of an AssertedInference).

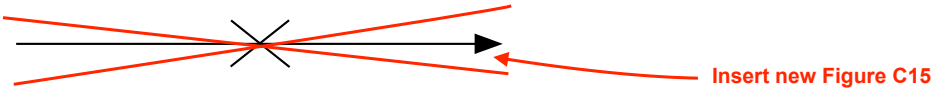


Figure C18 - Concrete Syntax for defeated AssertedInference

An asCited AssertedInference indicates that the inference cites another AssertedInference and is hence supported by the cited AssertedInference. The concrete syntax of an asCited AssertedInference is defined in Figure C19 (note: the change is applied to the +target reference edge of an AssertedInference).

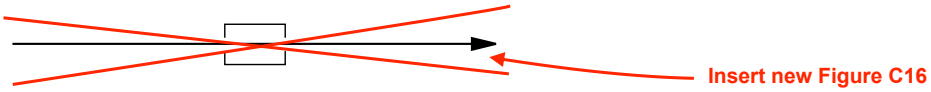


Figure C19 - Concrete Syntax for asCited AssertedInference

An abstract AssertedInference indicates that the inference is part of a pattern or template. The concrete syntax of an abstract AssertedInference is defined in Figure C20 (note: the change is applied to the +target reference edge of an AssertedInference).

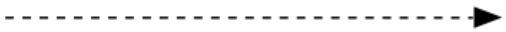


Figure C20 - Concrete Syntax for abstract asserted AssertedInference

For other types of AssertedInference, they should be rendered in dash lines, should their +isAbstract attribute is true.

An isCounter AssertedInference indicates that the inference counters its declared purposes. The concrete syntax of an isCounter AssertedInference is defined in Figure C21 (note: the change is applied to the +target reference edge of an AssertedInference).

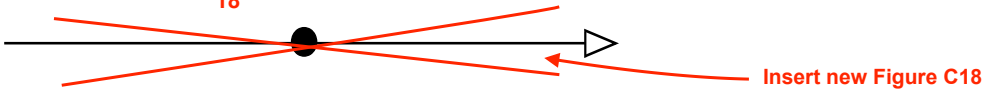
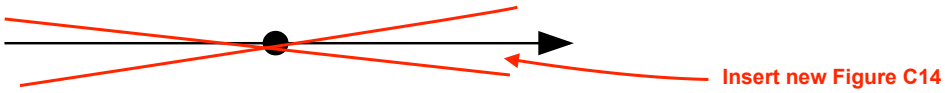


Figure C21 - Concrete Syntax for counter asserted AssertedInference

C.9 AssertedEvidence

The concrete syntax of AssertedEvidence is defined in Figure C22, where the dot represents the AssertedEvidence instance, the edge without an arrow represents the +source reference of the AssertedEvidence, and the edge with an arrow represents the +target reference of the AssertedEvidence.



19
Figure C22 - Concrete Syntax for asserted AssertedEvidence

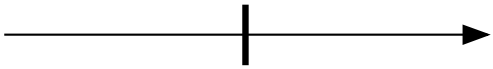
An assumed AssertedEvidence indicates that the inference is assumed without any supporting evidence or argumentation. The concrete syntax of an assumed AssertedEvidence is defined in Figure C23 (note: the change is applied to the +target reference edge of an AssertedEvidence).
20

20
Figure C23 - Concrete Syntax for assumed AssertedEvidence

A needsSupport AssertedEvidence indicates that the inference is declared as requiring further evidence or argumentation. The concrete syntax of a needsSupport AssertedEvidence is defined in Figure C24 (note: the change is applied to the +target reference edge of an AssertedEvidence).
21

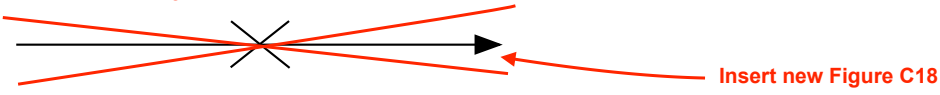
21
Figure C24 - Concrete Syntax for needsSupport AssertedEvidence

An axiomatic AssertedEvidence indicates that the inference is declared to be axiomatically true. The concrete syntax of an axiomatic AssertedEvidence is defined in Figure C25 (note: the change is applied to the +target reference edge of an AssertedEvidence).
22



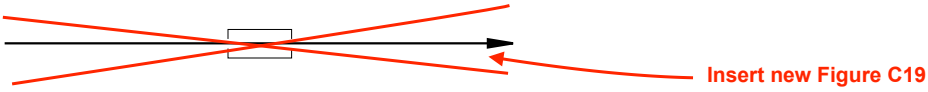
22
Figure C25 - Concrete Syntax for axiomatic AssertedEvidence

A defeated AssertedEvidence indicates that the inference is defeated by counter-evidence. The concrete syntax of a defeated AssertedEvidence is defined in Figure C26 (note: the change is applied to the +target reference edge of an AssertedEvidence).
23



23
Figure C26 - Concrete Syntax for defeated AssertedEvidence

An asCited AssertedEvidence indicates that the inference cites another AssertedEvidence and is hence supported by the cited AssertedEvidence. The concrete syntax of an asCited AssertedEvidence is defined in Figure C27 (note: the change is applied to the +target reference edge of an AssertedEvidence).
24



24
Figure C27 - Concrete Syntax for asCited AssertedEvidence

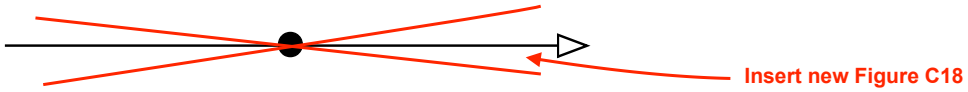
An abstract AssertedEvidence indicates that the inference is part of a pattern or template. The concrete syntax of an abstract AssertedEvidence is defined in Figure C28 (note: the change is applied to the +target reference edge of an AssertedEvidence).
25

25
Figure C28 - Concrete Syntax for abstract asserted AssertedEvidence

For other types of AssertedEvidence, they should be rendered in dash lines, should their +isAbstract attribute is true.

An isCounter AssertedEvidence indicates that the inference counters its declared purposes. The concrete syntax of an isCounter AssertedEvidence is defined in Figure C29 (note: the change is applied to the +target reference edge of an AssertedEvidence).

26

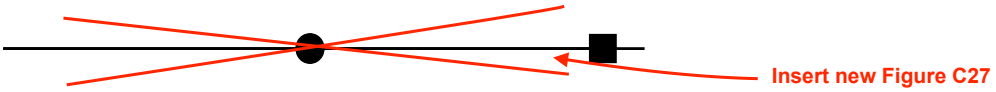


26
Figure C29 - Concrete Syntax for counter asserted AssertedEvidence

7
C.10 AssertedContext

The concrete syntax of AssertedContext is defined in Figure C30, where the dot represents the AssertedContext instance, the edge without an arrow represents the +source reference of the AssertedContext, and the edge with an arrow represents the +target reference of the AssertedContext.

27



27
Figure C30 - Concrete Syntax for asserted AssertedContext

An assumed AssertedContext indicates that the inference is assumed without any supporting evidence or argumentation. The concrete syntax of an assumed AssertedContext is defined in Figure C31 (note: the change is applied to the +target reference edge of an AssertedContext).

28

28
Figure C31 - Concrete Syntax for assumed AssertedContext

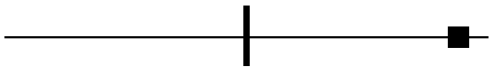
A needsSupport AssertedContext indicates that the inference is declared as requiring further evidence or argumentation. The concrete syntax of a needsSupport AssertedContext is defined in Figure C32 (note: the change is applied to the +target reference edge of an AssertedContext).

29

29
Figure C32 - Concrete Syntax for needsSupport AssertedContext

An axiomatic AssertedContext indicates that the inference is declared to be axiomatically true. The concrete syntax of an axiomatic AssertedContext is defined in Figure C33 (note: the change is applied to the +target reference edge of an AssertedContext).

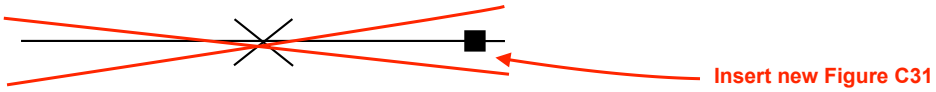
30



30
Figure C33 - Concrete Syntax for axiomatic AssertedContext

A defeated AssertedContext indicates that the inference is defeated by counter-evidence. The concrete syntax of a defeated AssertedContext is defined in Figure C34 (note: the change is applied to the +target reference edge of an AssertedContext).

31

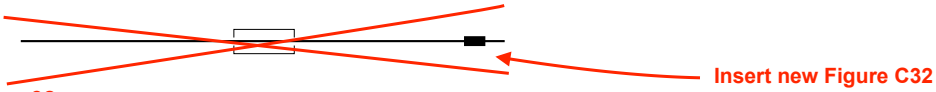


31

Figure C34 - Concrete Syntax for defeated AssertedContext

An asCited AssertedContext indicates that the inference cites another AssertedContext and is hence supported by the cited AssertedContext. The concrete syntax of a defeated AssertedInference is defined in Figure C35 (note: the change is applied to the +target reference edge of an AssertedContext).

32

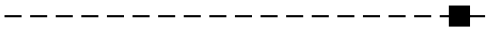


32

Figure C35 - Concrete Syntax for asCited AssertedContext

An abstract AssertedContext indicates that the inference is part of a pattern or template. The concrete syntax of a defeated AssertedContext is defined in Figure C36 (note: the change is applied to the +target reference edge of an AssertedContext).

33



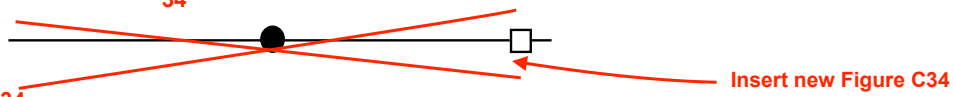
33

Figure C36 - Concrete Syntax for abstract asserted AssertedContext

For other types of AssertedContext, they should be rendered in dash lines, should their +isAbstract attribute is true.

An isCounter AssertedContext indicates that the inference counters its declared purposes. The concrete syntax of an isCounter AssertedContext is defined in Figure C37 (note: the change is applied to the +target reference edge of an AssertedContext).

34



34

Figure C37 - Concrete Syntax for counter asserted AssertedContext

C.11 AssertedArtifactSupport

The concrete syntax of AssertedArtifactSupport is defined in Figure C38, where the dot represents the AssertedArtifactSupport instance, the edge without an arrow represents the +source reference of the AssertedArtifactSupport, and the edge with an arrow represents the +target reference of the AssertedArtifactSupport.

Figure C38 - Concrete Syntax for asserted AssertedArtifactSupport

An assumed AssertedArtifactSupport indicates that the inference is assumed without any supporting evidence or argumentation. The concrete syntax of an assumed AssertedArtifactSupport is defined in Figure C39 (note: the change is applied to the +target reference edge of an AssertedArtifactSupport).

Figure C39 - Concrete Syntax for assumed AssertedArtifactSupport

A needsSupport AssertedArtifactSupport indicates that the inference is declared as requiring further evidence or argumentation. The concrete syntax of a needsSupport AssertedArtifactSupport is defined in Figure C40 (note: the change is applied to the +target reference edge of an AssertedArtifactSupport).

Figure C40 - Concrete Syntax for needsSupport AssertedArtifactSupport

An axiomatic AssertedArtifactSupport indicates that the inference is declared to be axiomatically true. The concrete syntax of an axiomatic AssertedArtifactSupport is defined in Figure C41 (note: the change is applied to the +target reference edge of an AssertedArtifactSupport).

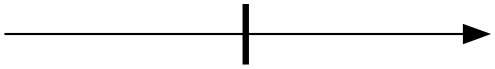


Figure C41 - Concrete Syntax for axiomatic AssertedArtifactSupport

A defeated AssertedArtifactSupport indicates that the inference is defeated by counter-evidence. The concrete syntax of a defeated AssertedArtifactSupport is defined in Figure C42 (note: the change is applied to the +target reference edge of an AssertedArtifactSupport).

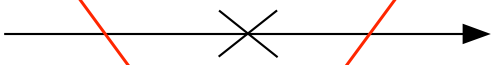


Figure C42 - Concrete Syntax for defeated AssertedArtifactSupport

An asCited AssertedArtifactSupport indicates that the inference cites another AssertedArtifactSupport and is hence supported by the cited AssertedArtifactSupport. The concrete syntax of a defeated AssertedInference is defined in Figure C43 (note: the change is applied to the +target reference edge of an AssertedArtifactSupport).

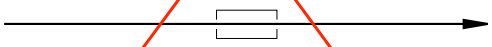


Figure C43 - Concrete Syntax for asCited AssertedArtifactSupport

An abstract AssertedArtifactSupport indicates that the inference is part of a pattern or template. The concrete syntax of a defeated AssertedArtifactSupport is defined in Figure C44 (note: the change is applied to the +target reference edge of an AssertedArtifactSupport).

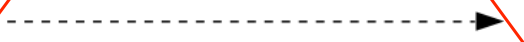


Figure C44 - Concrete Syntax for abstract asserted AssertedArtifactSupport

For other types of AssertedArtifactSupport, they should be rendered in dash lines, should their +isAbstract attribute is true.

An isCounter AssertedArtifactSupport indicates that the inference counters its declared purposes. The concrete syntax of an isCounter AssertedArtifactSupport is defined in Figure C45 (note: the change is applied to the +target reference edge of an AssertedArtifactSupport).

Figure C45 - Concrete Syntax for counter asserted AssertedArtifactSupport

Note: although the graphical notation of AssertedArtifactSupport is similar to AssertedInference/AssertedEvidence,

they are distinguishable through the types of elements that the +source and +target references connect to.

C.12 AssertedArtifactContext

The concrete syntax of AssertedArtifactContext is defined in Figure C46, where the dot represents the AssertedArtifactContext instance, the edge without an arrow represents the +source reference of the AssertedArtifactContext, and the edge with an arrow represents the +target reference of the AssertedArtifactContext.

Figure C46 - Concrete Syntax for asserted AssertedArtifactContext

An assumed AssertedArtifactContext indicates that the inference is assumed without any supporting evidence or argumentation. The concrete syntax of an assumed AssertedArtifactContext is defined in Figure C47 (note: the change is applied to the +target reference edge of an AssertedArtifactContext).

Figure C47 - Concrete Syntax for assumed AssertedArtifactContext

A needsSupport AssertedArtifactContext indicates that the inference is declared as requiring further evidence or argumentation. The concrete syntax of a needsSupport AssertedArtifactContext is defined in Figure C48 (note: the change is applied to the +target reference edge of an AssertedArtifactContext).

Figure C48 - Concrete Syntax for needsSupport AssertedArtifactContext

An axiomatic AssertedArtifactContext indicates that the inference is declared to be axiomatically true. The concrete syntax of an axiomatic AssertedArtifactContext is defined in FigureC49 (note: the change is applied to the +target reference edge of an AssertedArtifactContext).

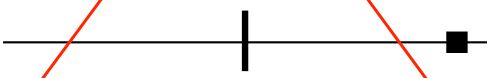


Figure C49 - Concrete Syntax for axiomatic AssertedArtifactContext

A defeated AssertedArtifactContext indicates that the inference is defeated by counter-evidence. The concrete syntax of a defeated AssertedArtifactContext is defined in Figure C50 (note: the change is applied to the +target reference edge of an AssertedArtifactContext).

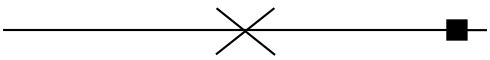


Figure C50 - Concrete Syntax for defeated AssertedArtifactContext

An asCited AssertedArtifactContext indicates that the inference cites another AssertedArtifactContext and is hence supported by the cited AssertedArtifactContext. The concrete syntax of a defeated AssertedInference is defined in Figure C51 (note: the change is applied to the +target reference edge of an AssertedArtifactContext).

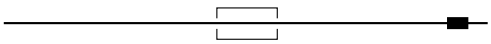


Figure C51 - Concrete Syntax for asCited AssertedArtifactContext

An abstract AssertedArtifactContext indicates that the inference is part of a pattern or template. The concrete syntax of a defeated AssertedArtifactContext is defined in Figure C52 (note: the change is applied to the +target reference edge of an AssertedArtifactContext).

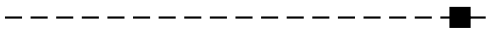


Figure C52 - Concrete Syntax for abstract asserted AssertedArtifactContext

For other types of AssertedArtifactContext, they should be rendered in dash lines, should their +isAbstract attribute is true.

An isCounter AssertedArtifactContext indicates that the inference counters its declared purposes. The concrete syntax of an isCounter AssertedArtifactContext is defined in Figure C53 (note: the change is applied to the +target reference edge of an AssertedArtifactContext).

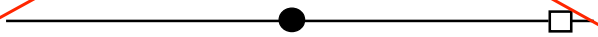


Figure C53 - Concrete Syntax for counter asserted AssertedArtifactContext

Note: although the graphical notation of AssertedArtifactContext is similar to AssertedContext, they are distinguishable through the types of elements that the +source and +target references connect to.

C.11 JoinTypeKind Notations

The following are icons that can be applied to the different JoinTypeKind specializations.

Figure C35 - Concrete Syntax for the And JoinTypeKind specialization

Figure C36 - Concrete Syntax for the Combine JoinTypeKind specialization

Figure C37 - Concrete Syntax for the Or JoinTypeKind specialization

Figure C38 - Concrete Syntax for the Rule JoinTypeKind specialization

Figure C39 - Concrete Syntax for the Xor JoinTypeKind specialization

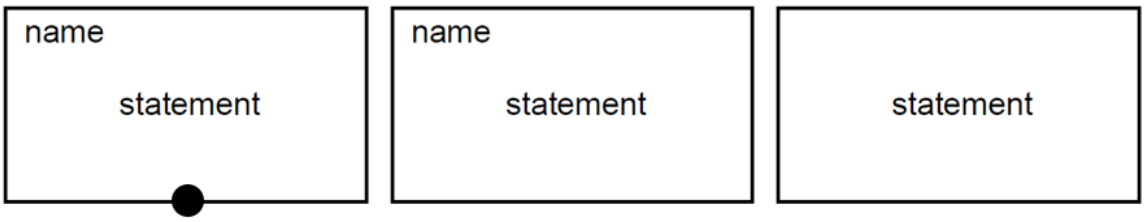


Figure C3 - Concrete Syntax for asserted Claim

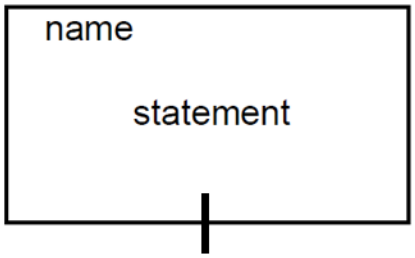


Figure C6 - Concrete Syntax for axiomatic Claim

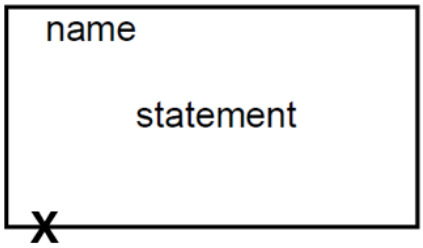


Figure C7 - Concrete Syntax for defeated Claim

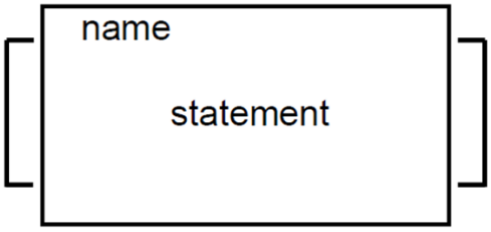


Figure C8 - Concrete Syntax for asCited Claim

Figure C11 - Concrete Syntax for asserted AssertedInference

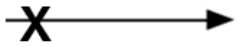


Figure C15 - Concrete Syntax for defeated AssertedInference

Figure C16 - Concrete Syntax for asCited AssertedInference

Figure C17 - Concrete Syntax for counter asserted AssertedInference

Figure C27 - Concrete Syntax for asserted AssertedContext

Figure C31 - Concrete Syntax for defeated AssertedContext

Figure C32 - Concrete Syntax for asCited AssertedContext

Figure C34 - Concrete Syntax for counter asserted AssertedContext