13 SACM Argument Metamodel

13.1 General

This chapter presents the normative specification for the SACM Argument Package. It begins with an overview of the metamodel structure followed by a description of each element.

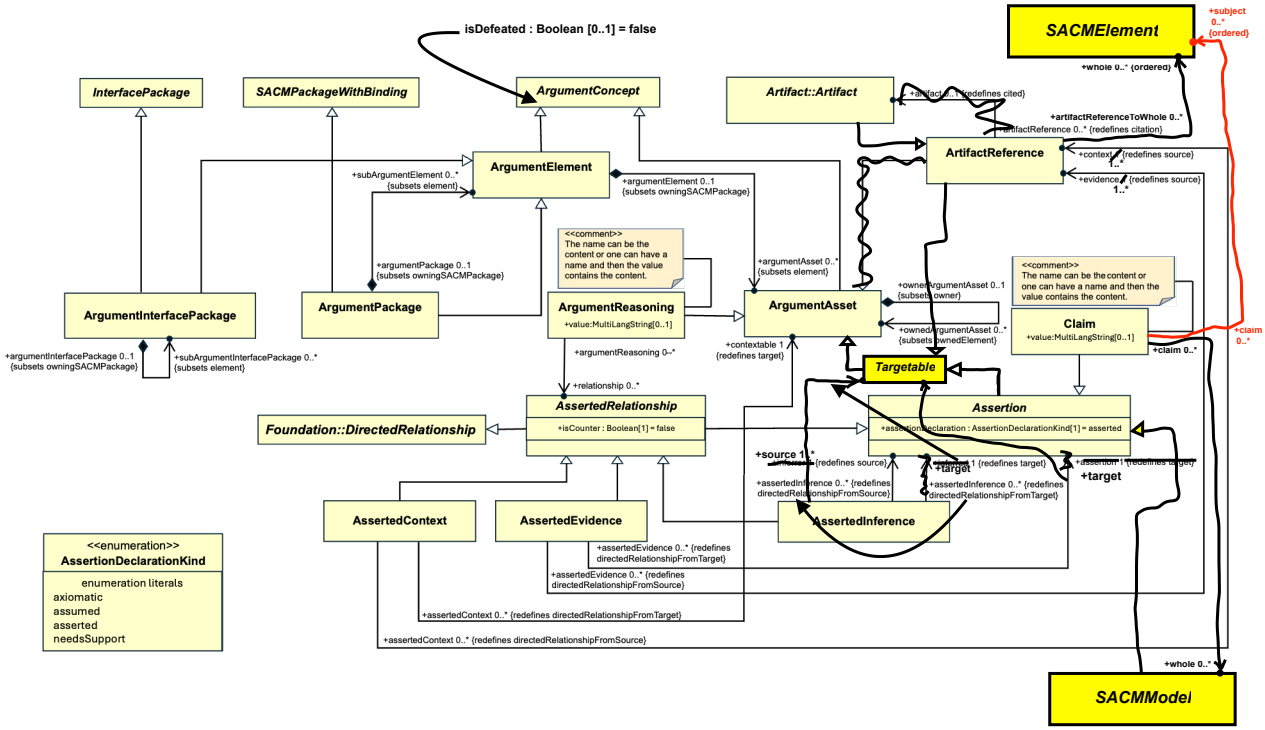

Figure 13.1 – Argument Package Diagram

This portion of the SACM model describes and defines the concepts required to model structured arguments. Arguments are represented in SACM through explicitly representing the Claims and citation of artifacts (e.g., as evidence) (ArtifactReference), and the 'links' between these elements – e.g., how one or more Claims are asserted to infer another Claim, or how one or more artifacts (referenced by ArtifactReference) are asserted as providing evidence for a Claim (AssertedEvidence). In addition to these core elements, in SACM it is possible to provide additional description of the ArgumentReasoning associated with inferential and evidential relationships, represent counter-arguments and counter-evidence (through isCounter:Boolean), and represent how artifacts provide the context in which arguments should be interpreted (through AssertedContext).

The packaging of structured arguments into 'modular' argument packages is enabled through ArgumentPackages. Users are able to declare interfaces for their packages through the use of ArgumentInterfacePackage. Within an ArgumentInterfacePackage, users create citations of the argument elements they select to disclose to external parties. Users are able to integrate ArgumentPackages through the use of ArgumentBindingPackage. An ArgumentBindingPackage binds ArgumentPackages together by including the declared ArgumentInterfacePackages for the ArgumentPackages, it may contain additional argument structures to provide the rationale of the binding. It is also possible within a package to cite elements contained within other argument packages (through ArtifactReference).

Superclass

Targetable

~~ArgumentAsset~~

~~Associations~~

reference:SACMElement [0..*] {ordered} - artifactReference to the SACMElement

~~referencedArtifactElement:Base::ArtifactElement[0..*] - reference to a collection of ArtifactElements.~~

Semantics

referencing

reference SACMElement(s) to

It is necessary to be able to ~~cite artifacts th~~at provide supporting evidence, context, or additional description within an argument structure. ArtifactReferences allow there to be an objectified citation of this information within the structured argument~~, thereby allowing the relationship between this artifact and the argument to also be explicitly declare~~d.

~~12~~ 13 ~~11.10~~ 9 Assertion (abstract)

Assertions are used to record the propositions of Argumentation (including both the Claims about the subject of the argument and the structure of the Argumentation being asserted). Propositions can be true or false, but cannot be true and false simultaneously.

Superclass

Targetable

~~ArgumentAsset~~

Attributes

AssertionDeclarationKind[0..1]

assertionDeclaration:~~AssertionDeclaration[1]~~ = asserted – the declaration indicating the state of the Assertion.

~~Associations~~

~~metaClaim:Claim[0..*] - references Claims concerning (i.e., about) the Assertion (e.g., regarding the confidence in the Assertion)~~

Semantics

Structured arguments are declared by stating claims, citing evidence and contextual information, and asserting how these elements relate to each other.

~~12~~ 13 ~~11.11~~ 10 Claim

Claims are used to record the propositions of any structured argument contained in an ArgumentPackage. Propositions are instances of statements that could be true or false, but cannot be true and false simultaneously.

Superclass

Attributes

value:MultiLangString[0..1]

Association Ends

whole:SACMModel [0..*] - the whole structure that this Claim is about

subject:SACMElement [0..*] {ordered} - the subject(s) this Claim

Assertion

The core of any argument is a series of claims (premises) that are asserted to provide sufficient reasoning to support a (higher-level) claim (a conclusion). The name can be the content or one can have a name and then the value contains the content.

Semantics

~~The core of any argument is a series of claims (premises) that are asserted to provide sufficient reasoning to support a~~ (higher- level) claim (a conclusion).

A Claim that is intentionally declared without any supporting evidence or argumentation can be declared as being assumed (i.e., assertionDeclared = assumed). It is an assumption. However, it should be noted that a Claim that is not 'assumed' (i.e., assertionDeclaration = asserted) is not being declared as false. However, there is the expectation of the provision of a supporting argument structure (e.g., it may represent part of an incomplete structure).

A Claim that is intentionally declared as requiring further evidence or argumentation can be denoted by setting +assertionDeclaration to "needsSupport".

A Claim that is being declared as axiomatically true can be denoted by setting +assertionDeclaration to "axiomatic".

A Claim that is defeated by counter evidence or counter argument can be denoted by setting +assertionDeclaration to "defeated".

A Claim which cites another claim and supported by the cited claim can be denoted by setting +assertionDeclaration to "asCited".

The name can be the content or one can have a name and then the value contains the content.