WELCOME

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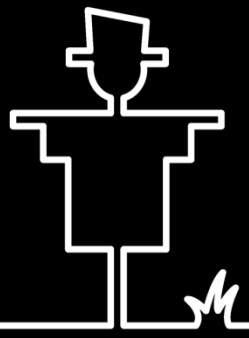

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The Evidence Pattern

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Derby – 2016-03-03

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Overview

1. Introduction
2. A (Brief) Overview of the FAF
3. The Evidence Pattern
4. Summary
5. Questions

1. Introduction

- The Evidence Pattern came out of idea suggested by Colin Wood at MBSE WG Meeting
  - Transport Catapult – 2014-05-12
- Developed by Simon Perry & Scarecrow
- Presented below as a set of FAF Views

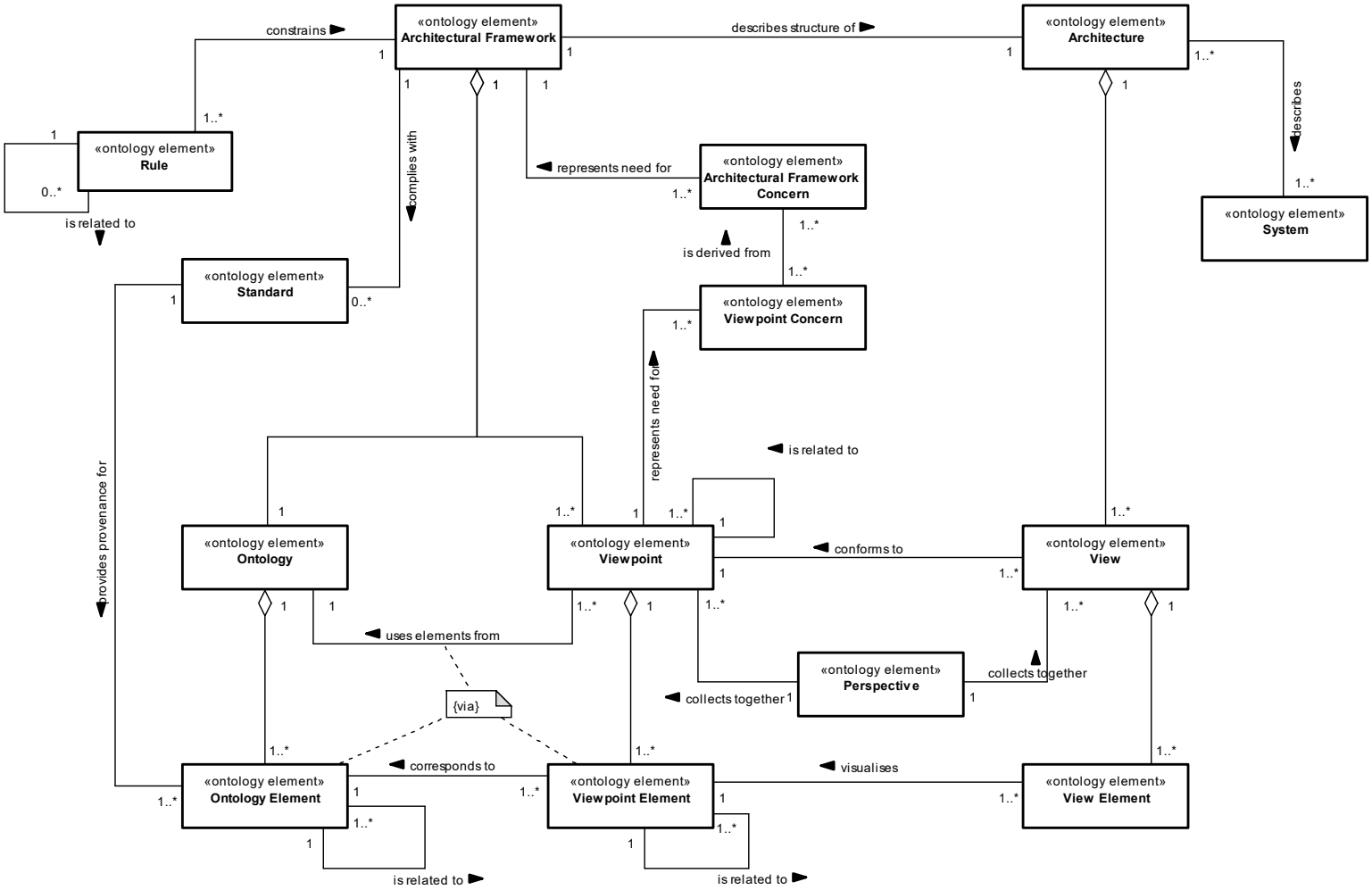
2. A (Brief) Overview of the FAF

- The FAF (Framework for Architectural Frameworks) was developed to improve the definition of Architectural Frameworks (AFs)
  - Also used to define Patterns
- The FAF is designed to force anyone defining an AF or Pattern to consider the following six questions:
  - What is the purpose of the AF/Pattern?
  - What domain concepts must the AF/Pattern support?
  - What viewpoints are required?
  - What is the purpose of each viewpoint?
  - What is the definition of each viewpoint in terms of the identified domain concepts?
  - What rules constrain the use of the AF/Pattern?

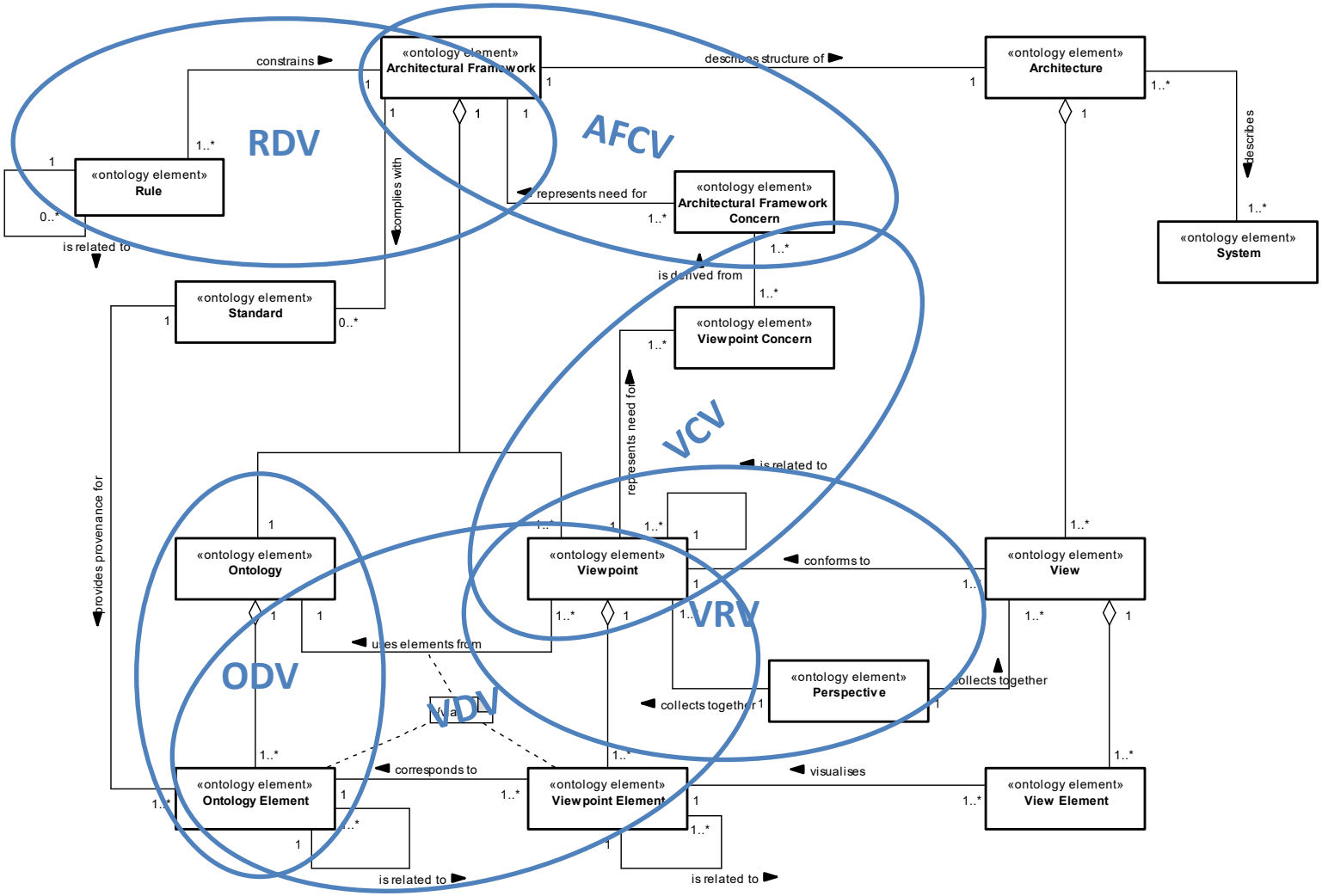
The Framework for Architectural Frameworks (FAF)

- The FAF addresses the six questions through an MBSE approach based around the ideas of ontology, viewpoints and framework
- Ontology
  - Define concepts and relationships between them
- Viewpoints and Framework
  - Define viewpoints organised into a framework
  - Viewpoints can only use concepts from the ontology
- FAF consists of:
  - An ontology
  - Six viewpoints
  - Supporting processes
- The FAF is defined using the FAF

The FAF Ontology



The FAF Viewpoints – Ontology Areas



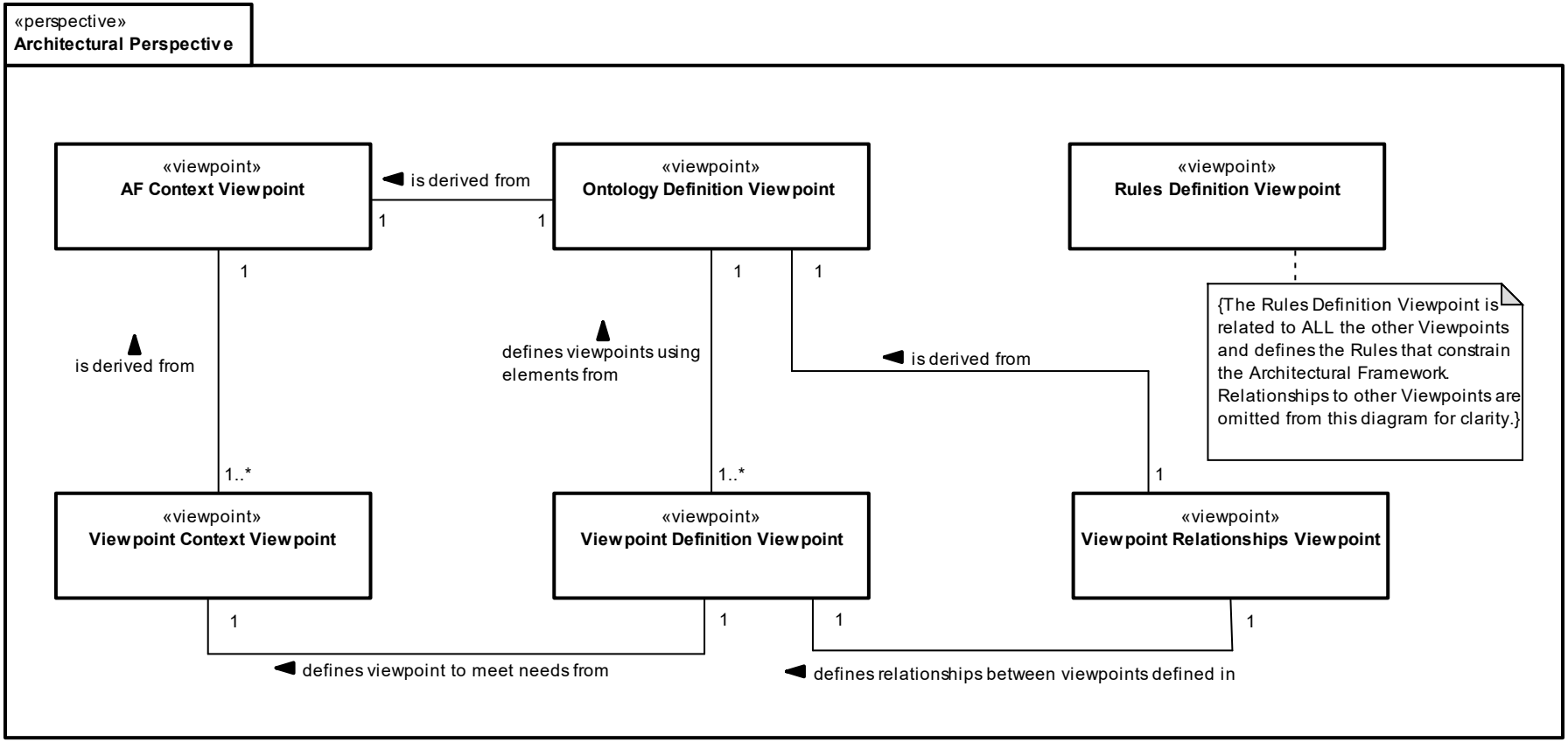
The FAF Viewpoints

- AF Context Viewpoint (AFCV)
  - What is the purpose of the AF?
    - Defines the context for the AF
    - Represents the AF concerns in context, establishing why the AF is needed
- Ontology Definition Viewpoint (ODV)
  - What domain concepts must the AF support?
    - Defines the ontology for the AF
    - Derived from the AF Context Viewpoint & and defines concepts that can appear on a Viewpoint
- Viewpoint Relationships Viewpoint (VRV)
  - What viewpoints are required?
    - Shows the relationships between the Viewpoints that make up an AF
    - Groups them into perspectives. It is derived from the Ontology Definition Viewpoint

The FAF Viewpoints continued

- Viewpoint Context Viewpoint (VCV)
  - What is the purpose of each viewpoint?
    - Defines the context for a particular Viewpoint
    - Represents the Viewpoint concerns in context for a particular Viewpoint, establishing why the Viewpoint is needed. It is derived from the AF Context Viewpoint
- Viewpoint Definition Viewpoint (VDV)
  - What is the definition of each viewpoint in terms of the identified domain concepts?
    - Defines a particular Viewpoint
    - Shows the Viewpoint Elements (and hence the Ontology Elements) that appear on the Viewpoint
- Rules Definition Viewpoint (RDV)
  - What rules constrain the use of the AF?
    - Defines the various rules that constrain the AF

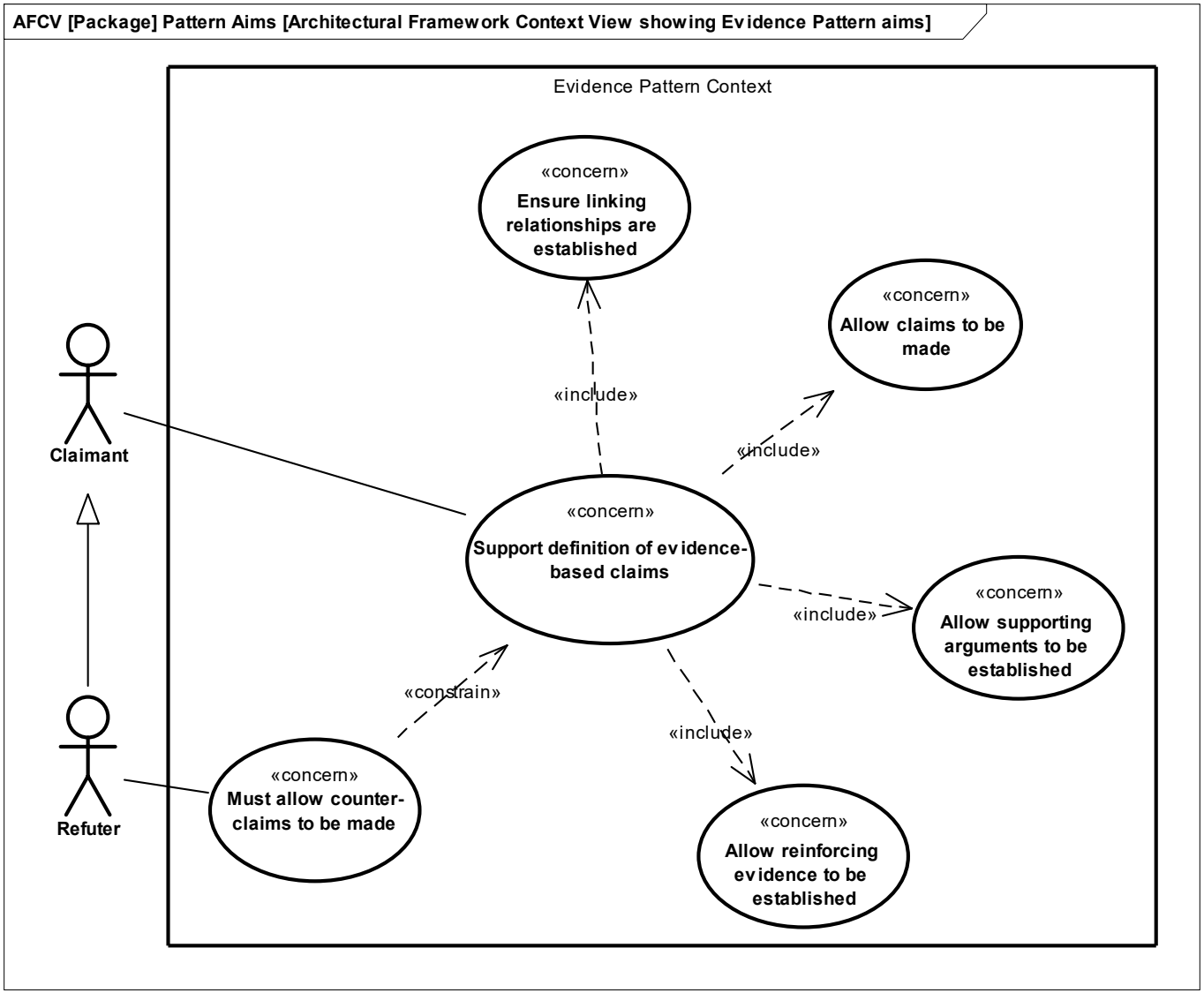
The FAF Viewpoints



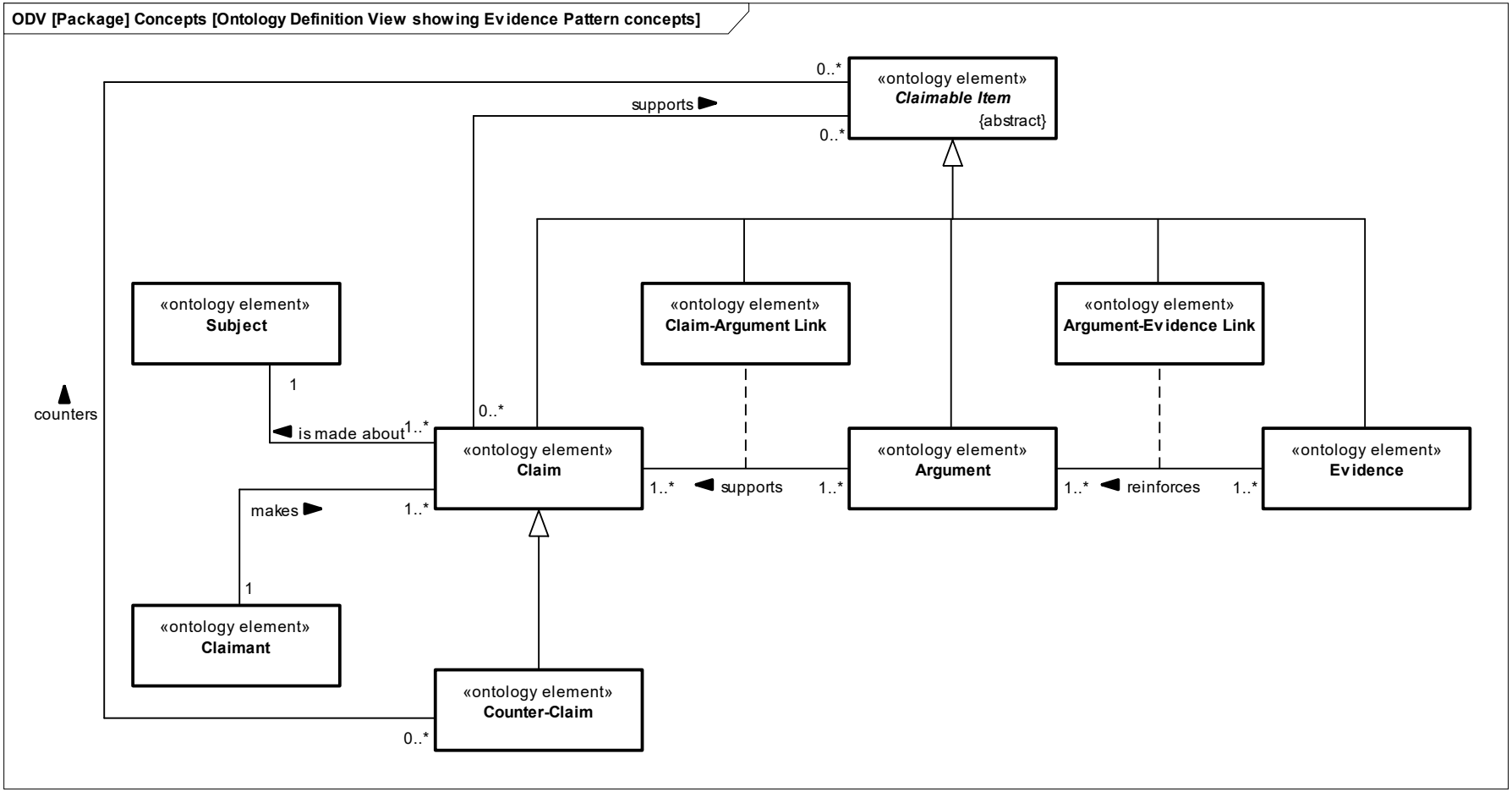
3. The Evidence Pattern

- Will be presented using FAF Views
  - AFCV
  - ODV
  - VRV
  - RDV
  - VCV, VDV & example for each of the Pattern's four Viewpoints:
    - Claim Definition Viewpoint
    - Argument Viewpoint
    - Evidence Viewpoint
    - Counter-Claim Viewpoint

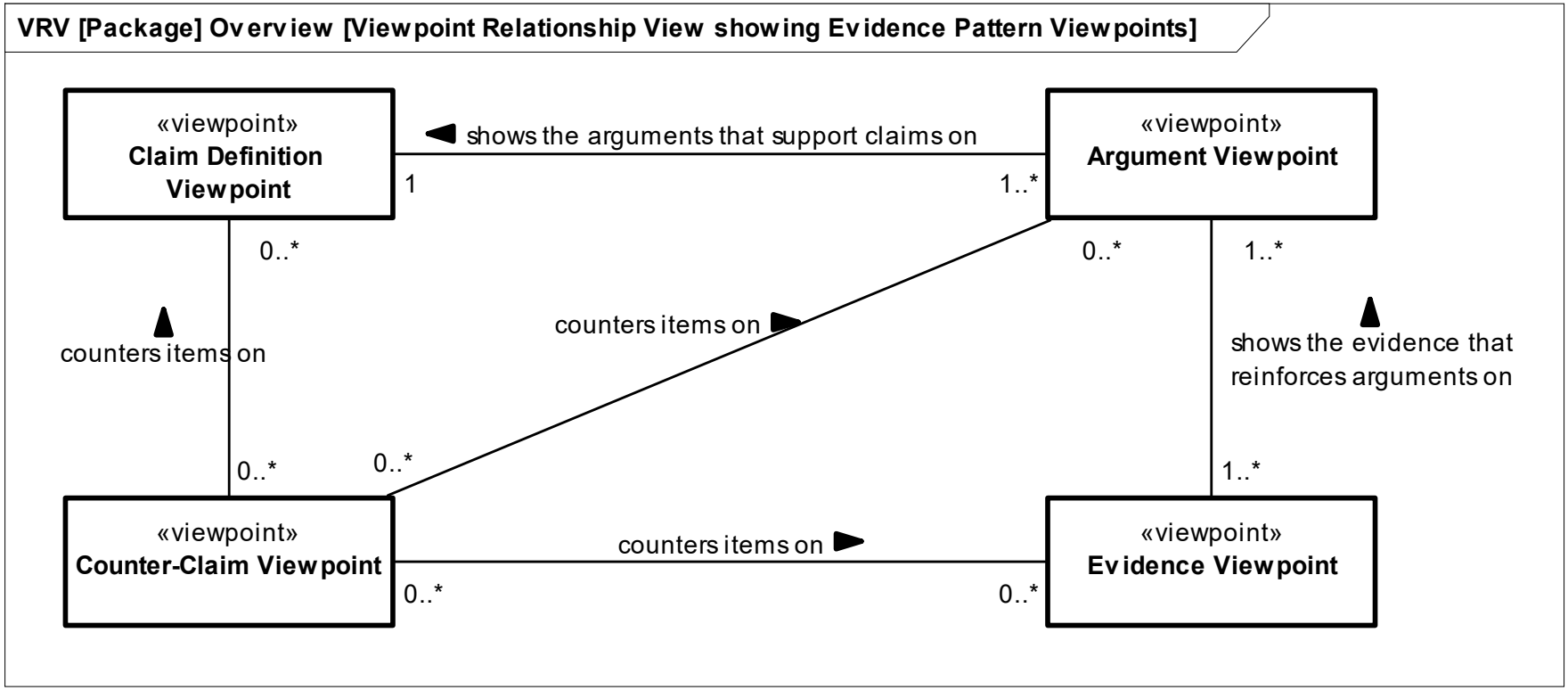
3.1 AFCV showing Evidence Pattern aims



3.2 ODV showing Evidence Pattern concepts



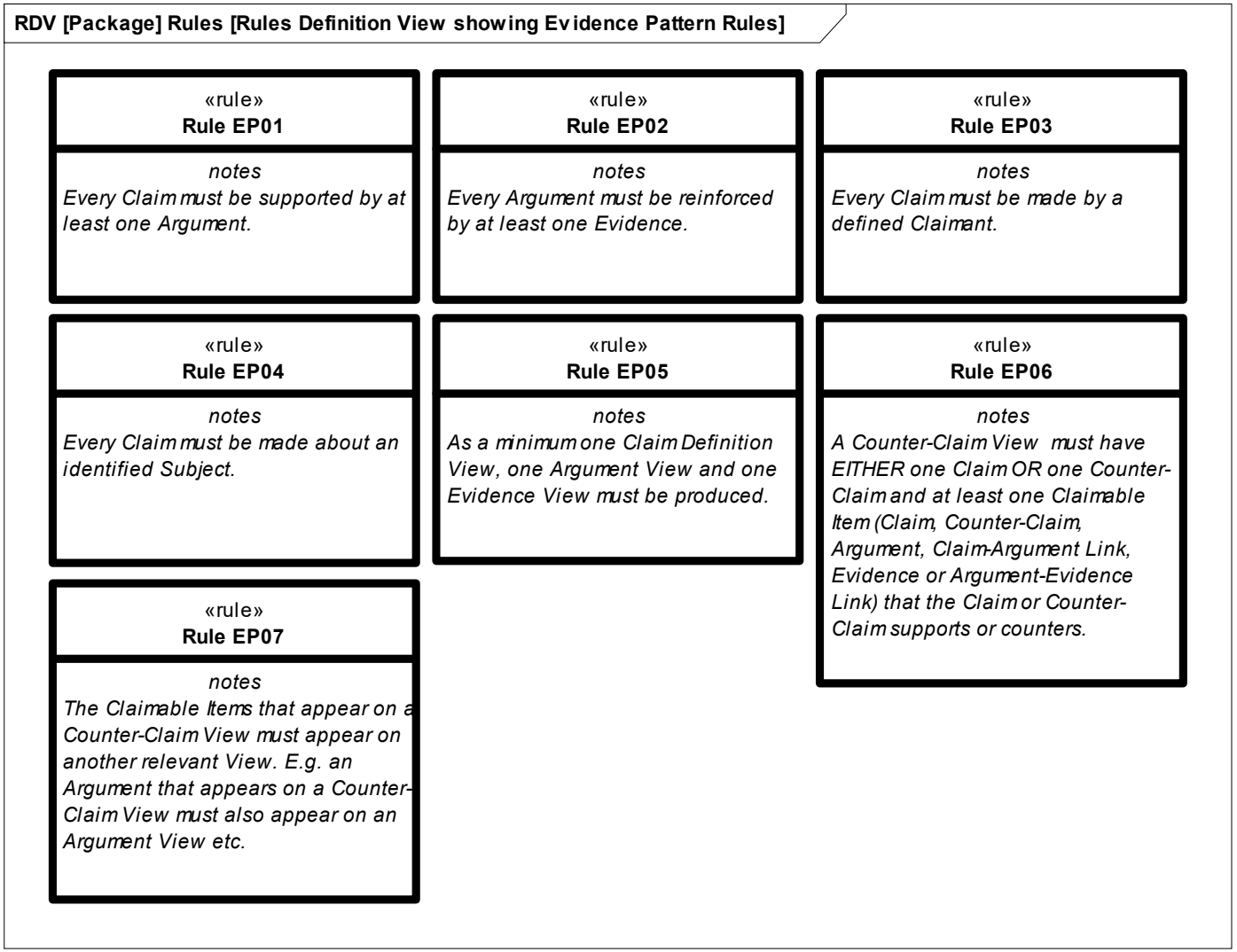
3.3 VRV showing Evidence Pattern Viewpoints



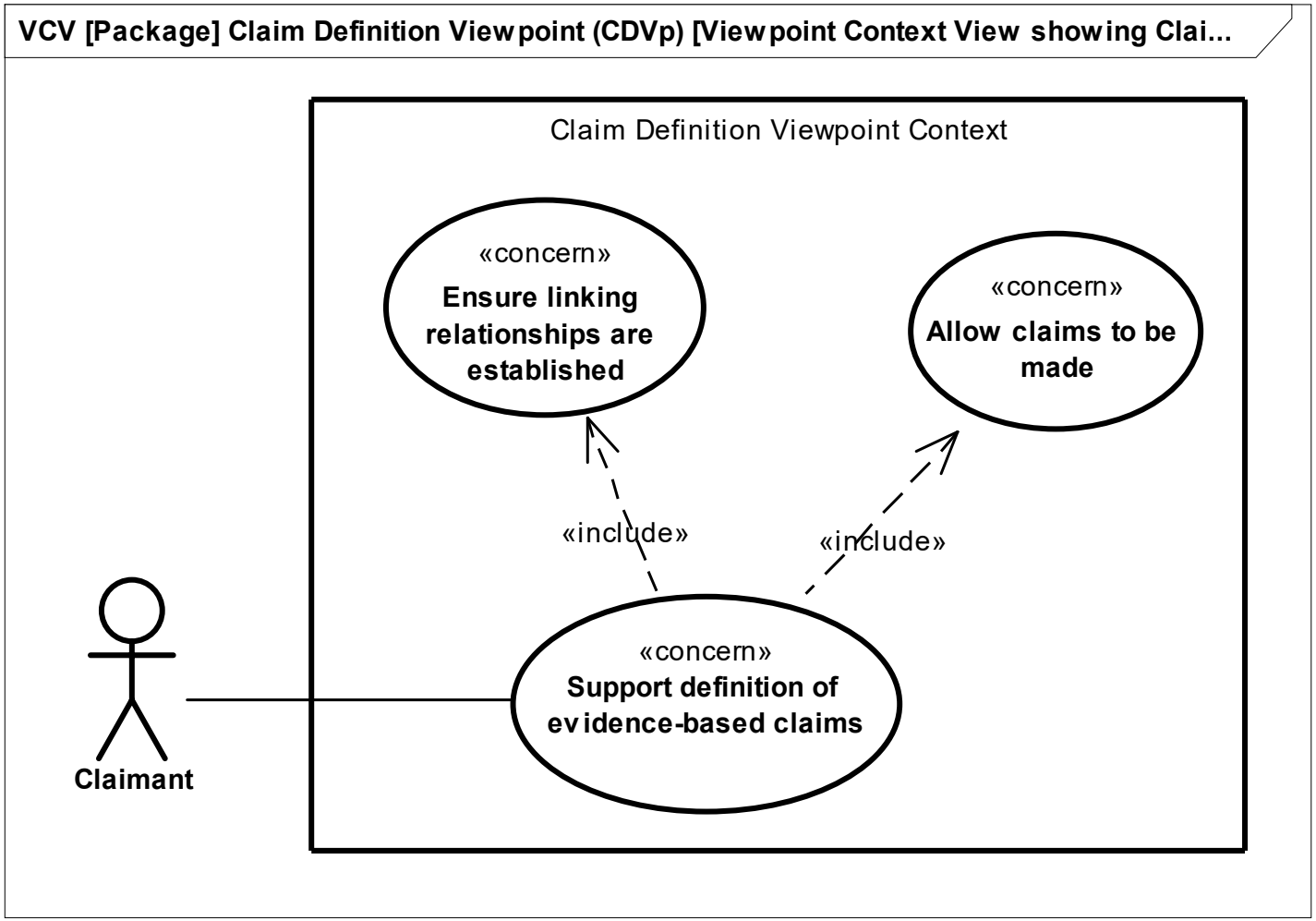
Evidence Pattern Viewpoints

- Claim Definition Viewpoint
  - Used to define Claims for a particular Subject and to show who made the Claims
- Argument Viewpoint
  - Used to show the Arguments that support a Claim
- Evidence Viewpoint
  - Used to show the Evidence that reinforces Arguments
- Counter-Claim Viewpoint
  - Used to make Counter-Claims (or supporting Claims) about Claimable Items

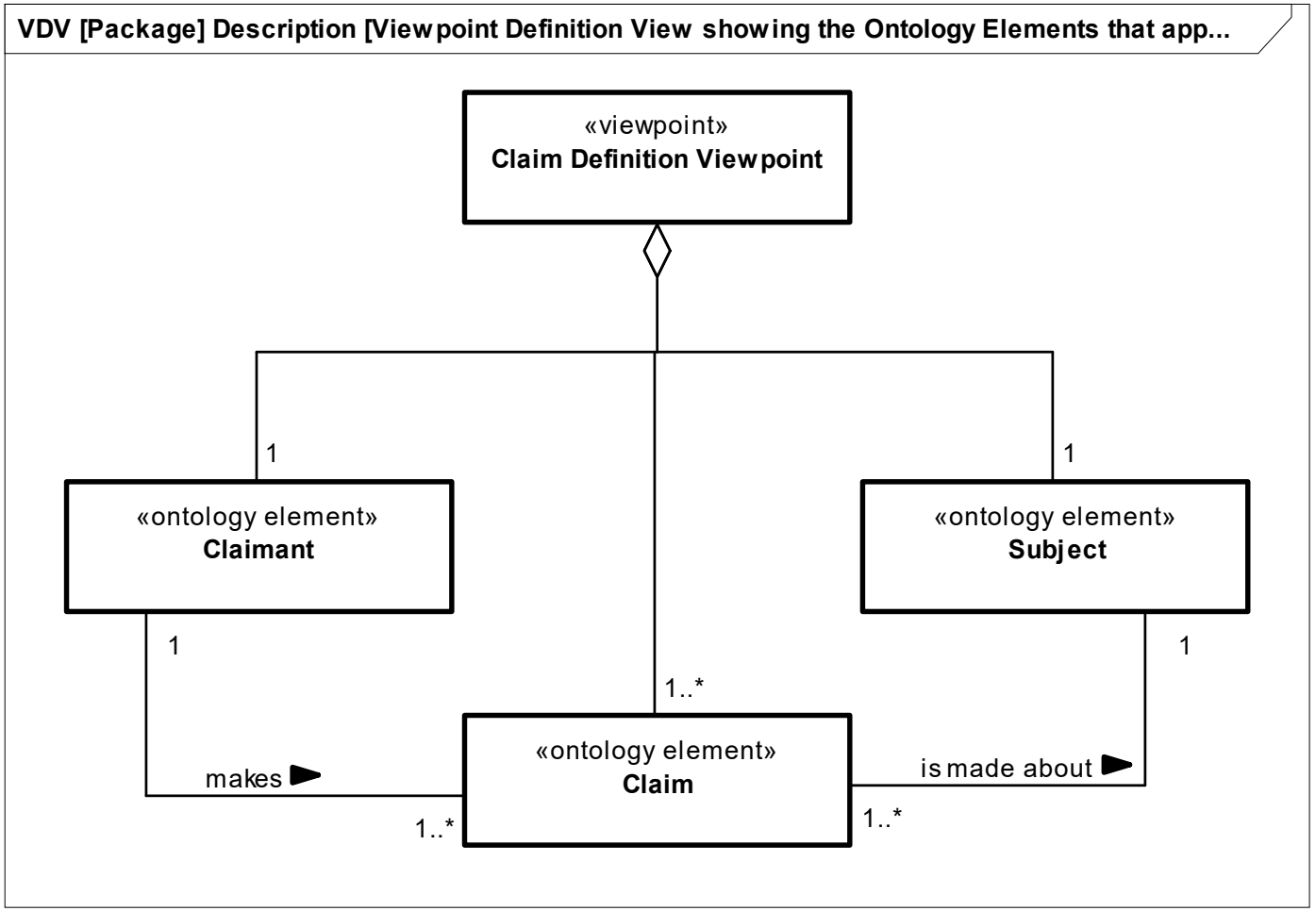
3.4 RDV showing Evidence Pattern Rules



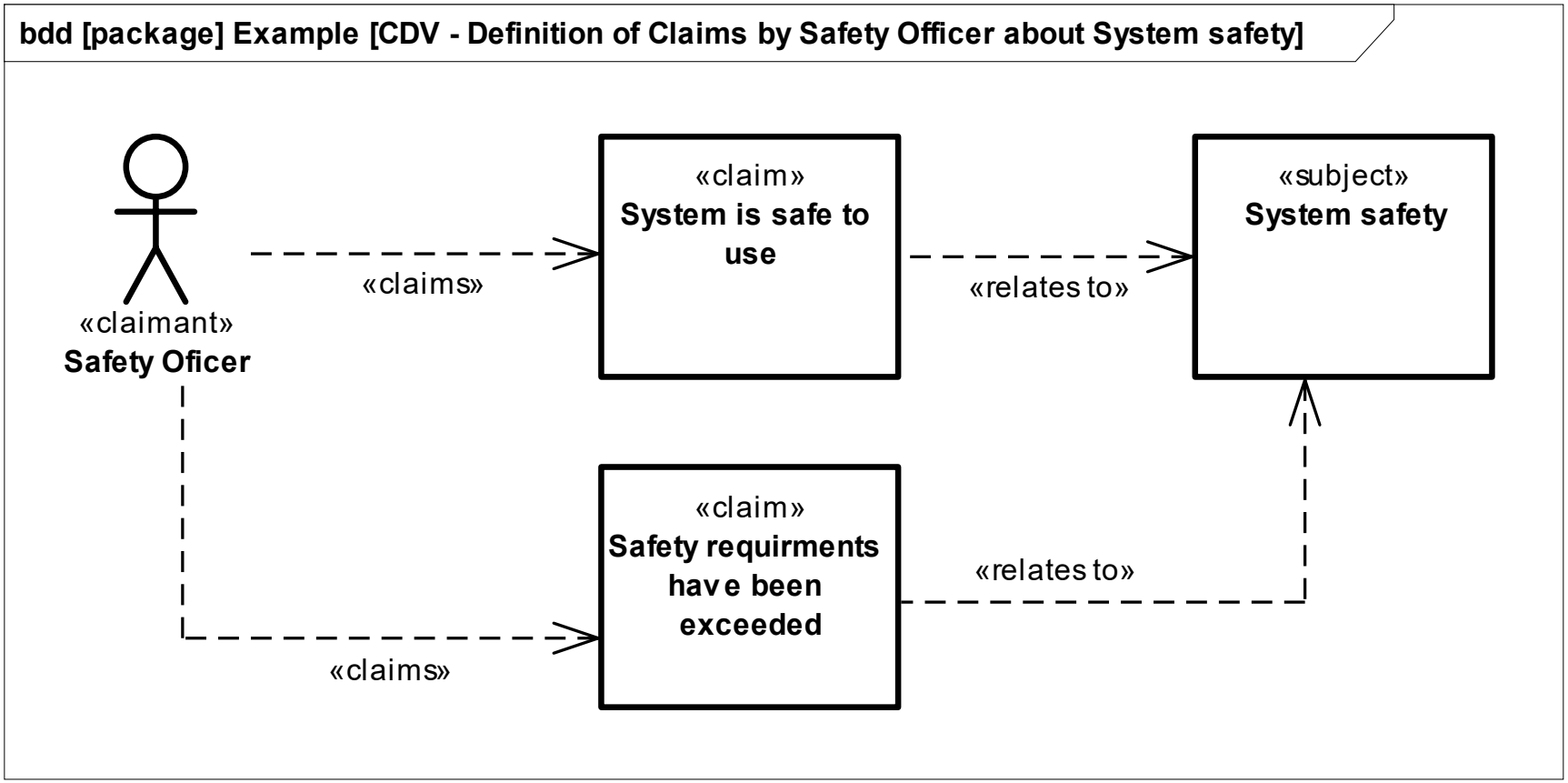
3.5 VCV showing Claim Definition Viewpoint aims



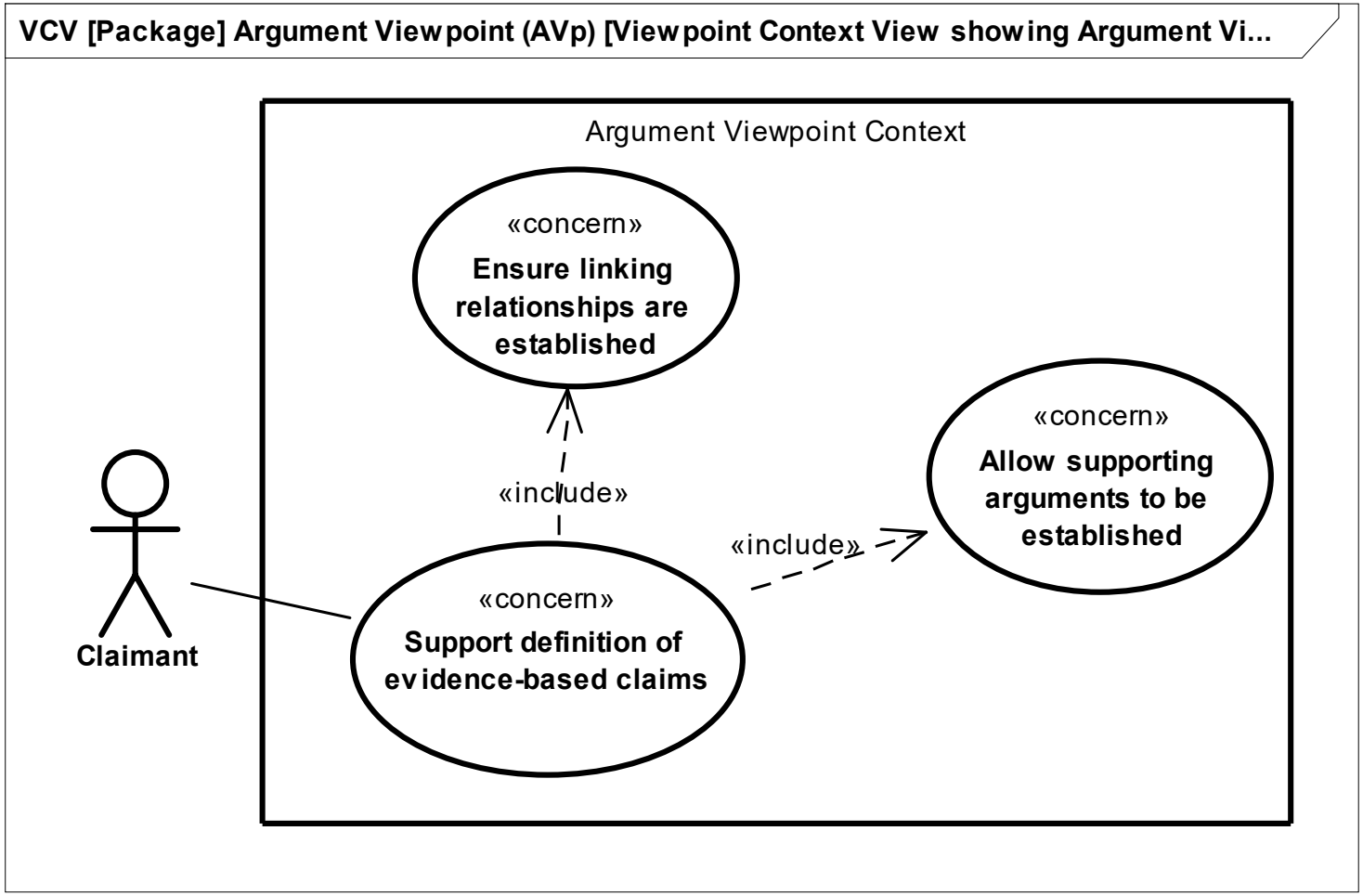
VDV showing the Ontology Elements that appear on the Claim Definition Viewpoint



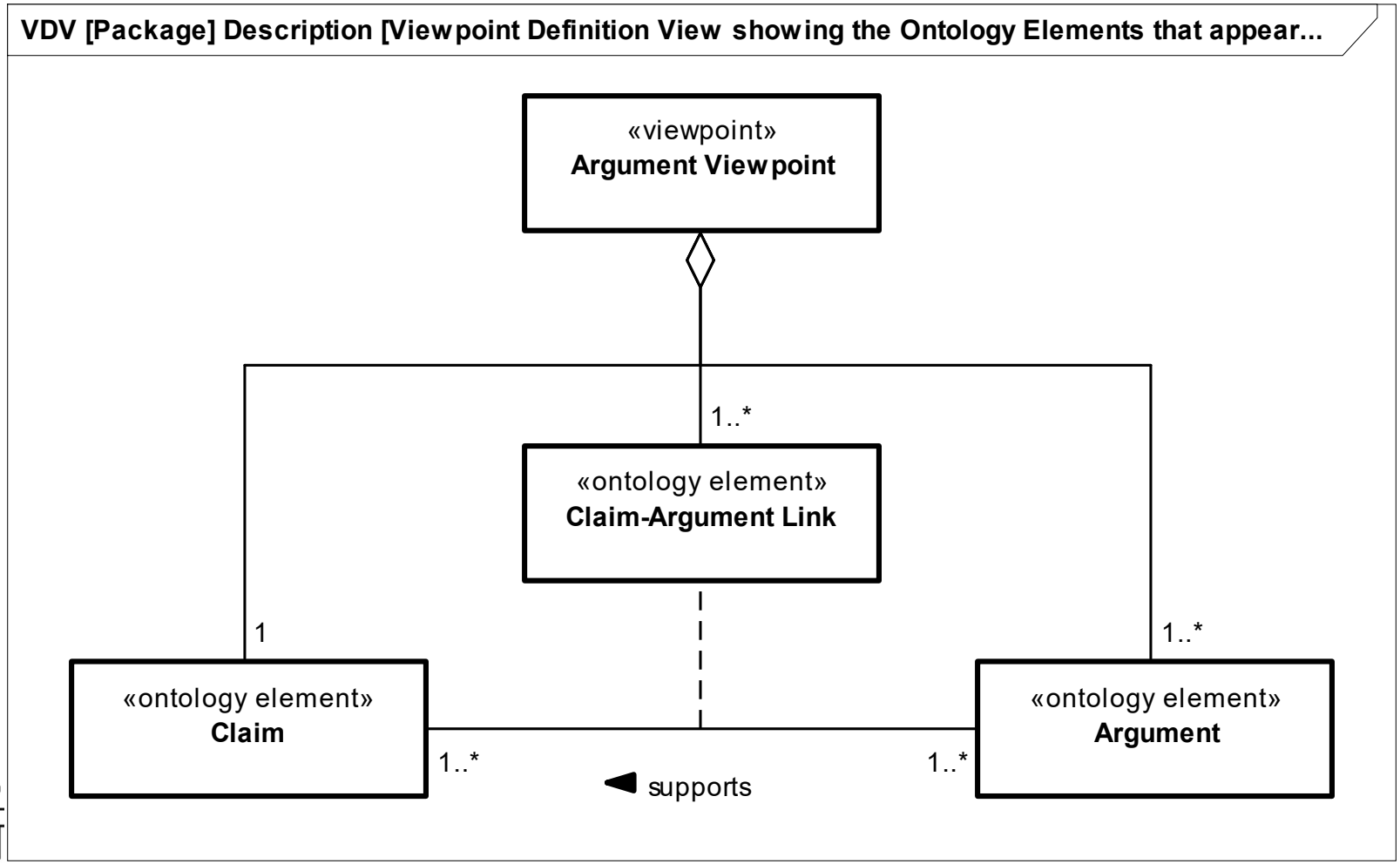
Example CDV - Definition of Claims by Safety Officer about System safety



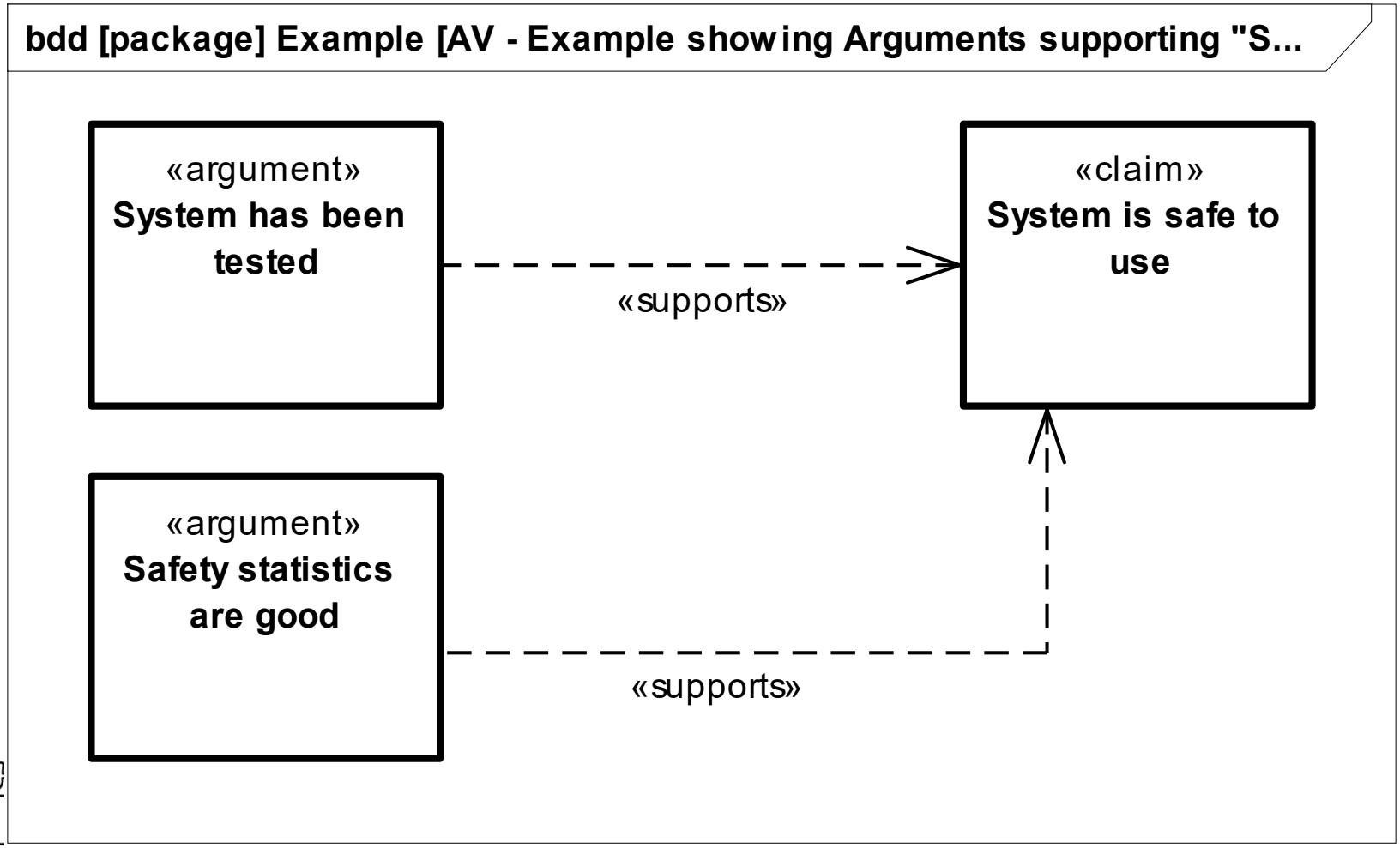
3.6 VCV showing Argument Viewpoint aims



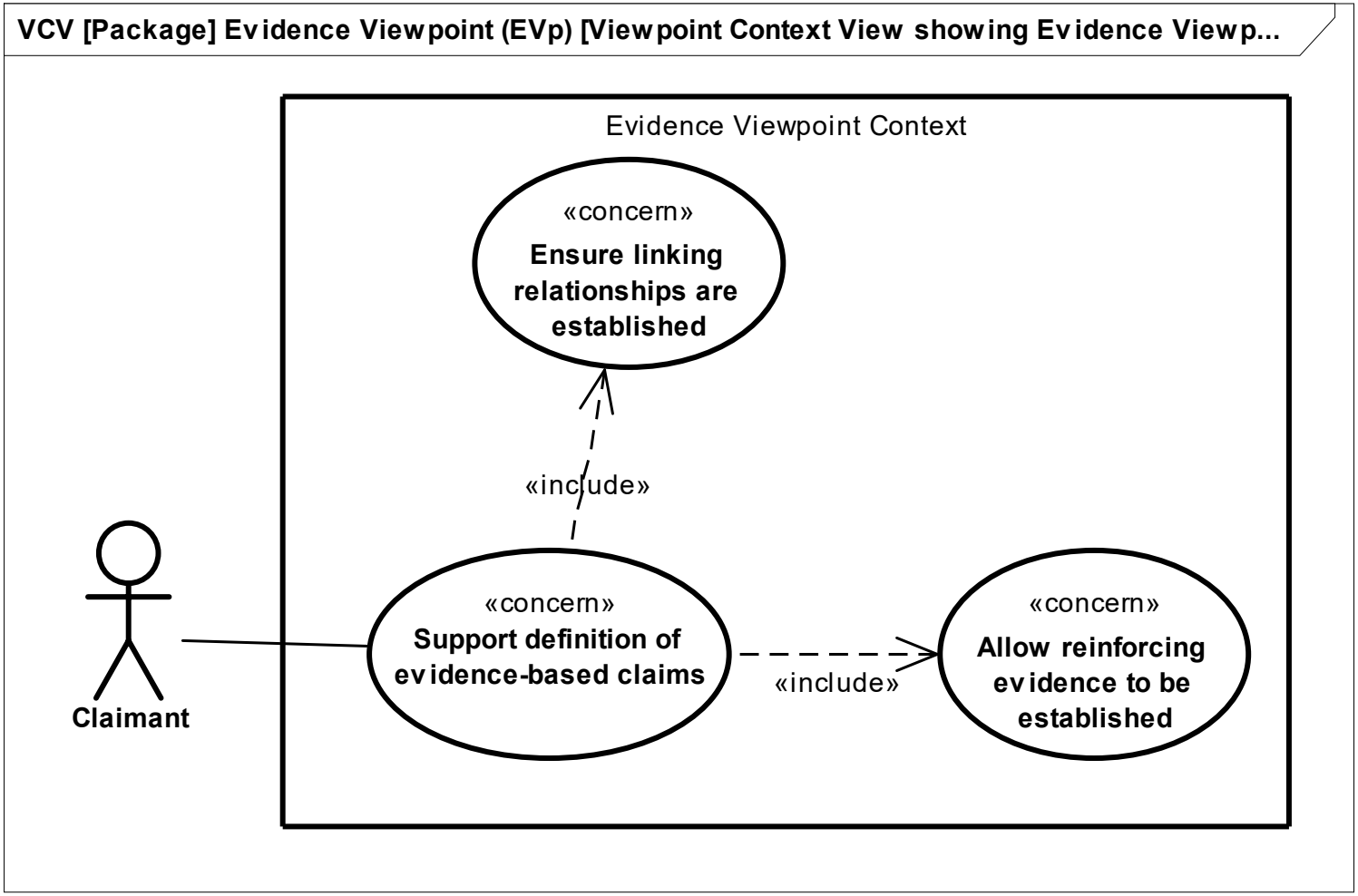
VDV showing the Ontology Elements that appear on the Argument Viewpoint



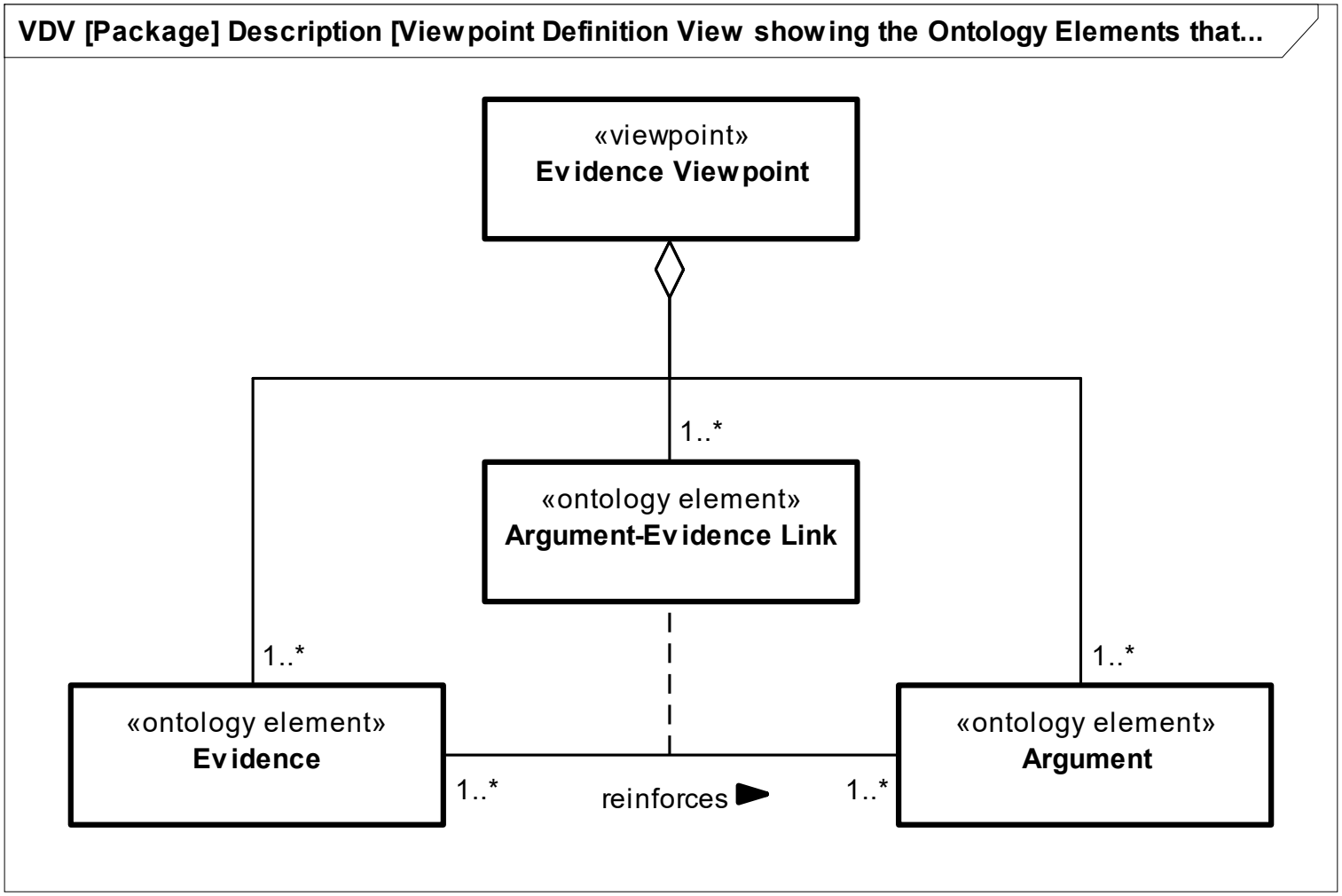
Example AV - Arguments supporting "System is safe to use" Claim



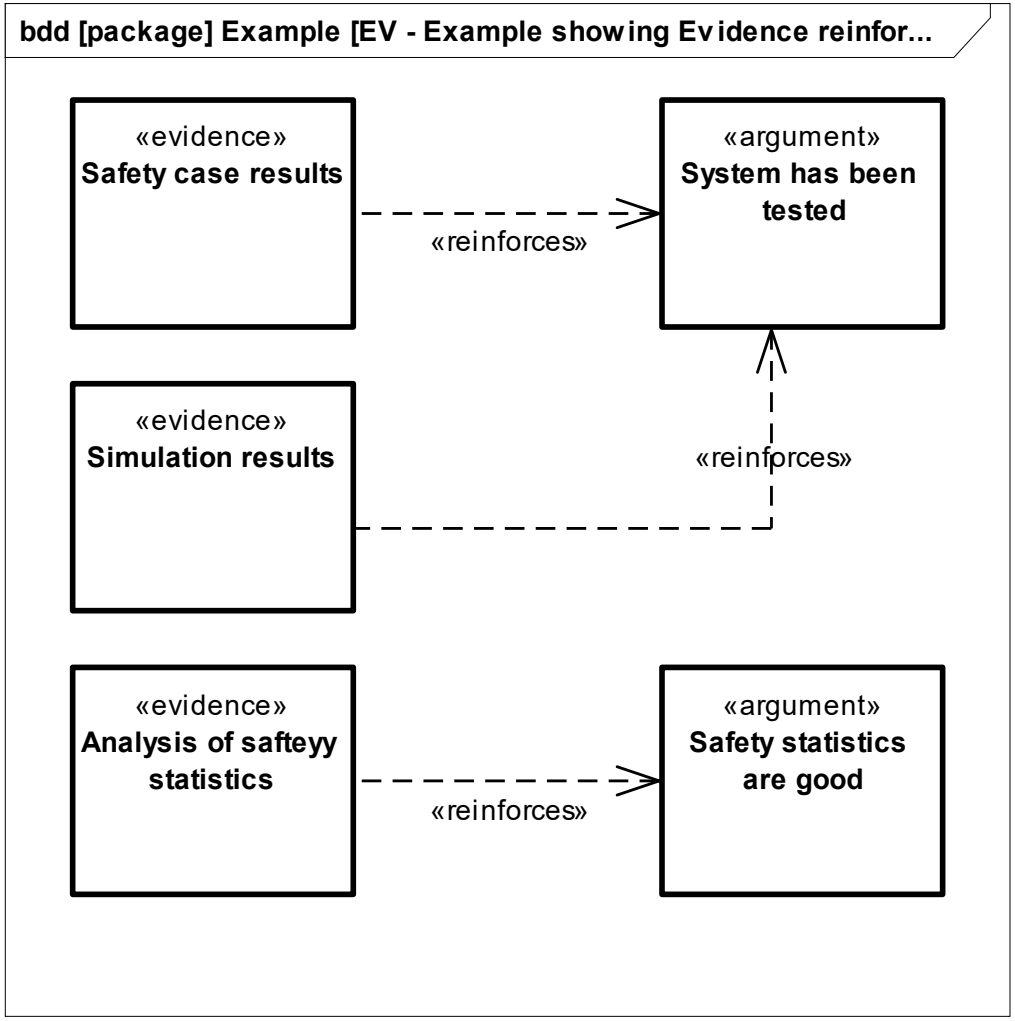
3.7 VCV showing Evidence Viewpoint aims



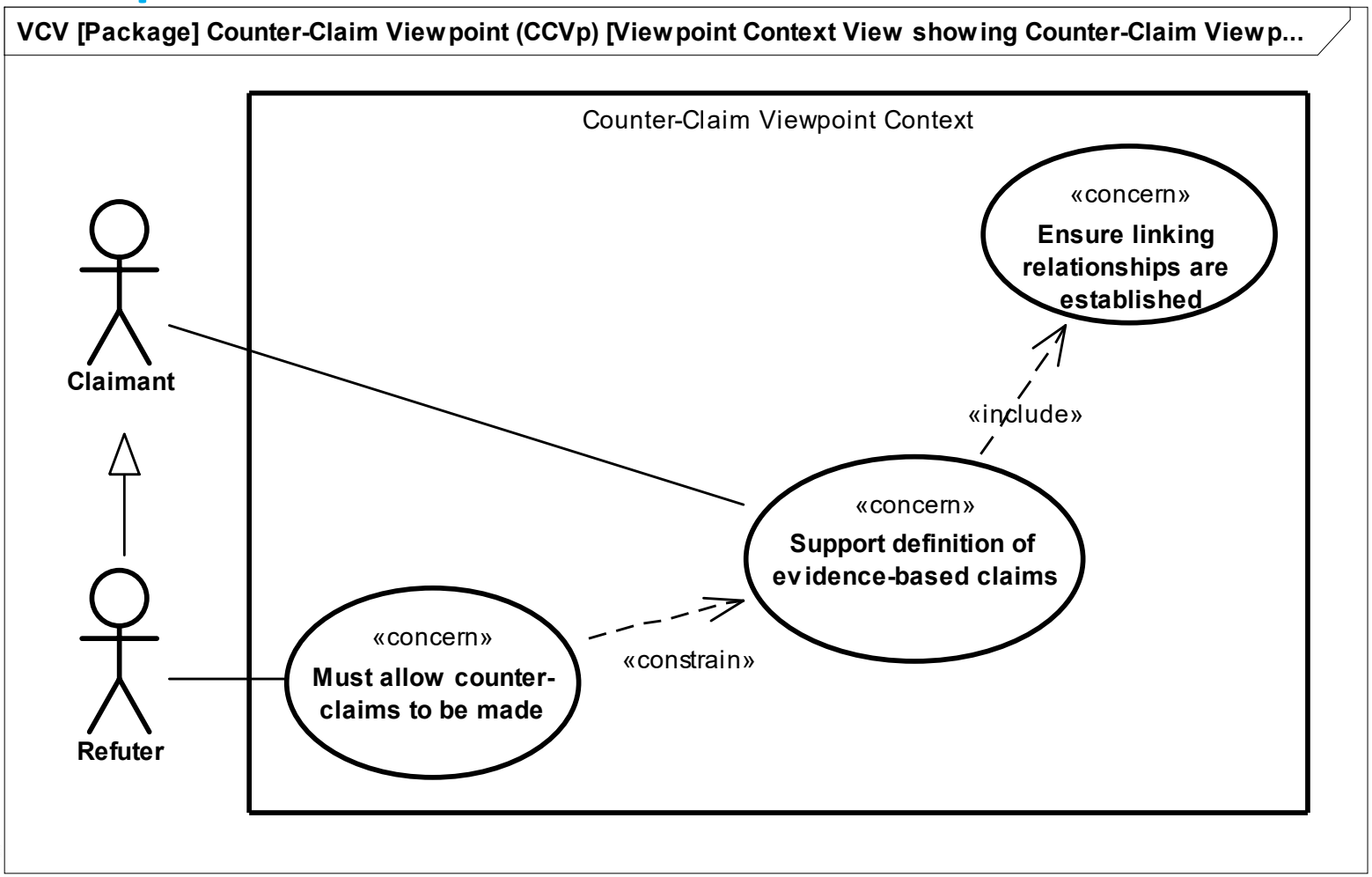
VDV showing the Ontology Elements that appear on the Evidence Viewpoint



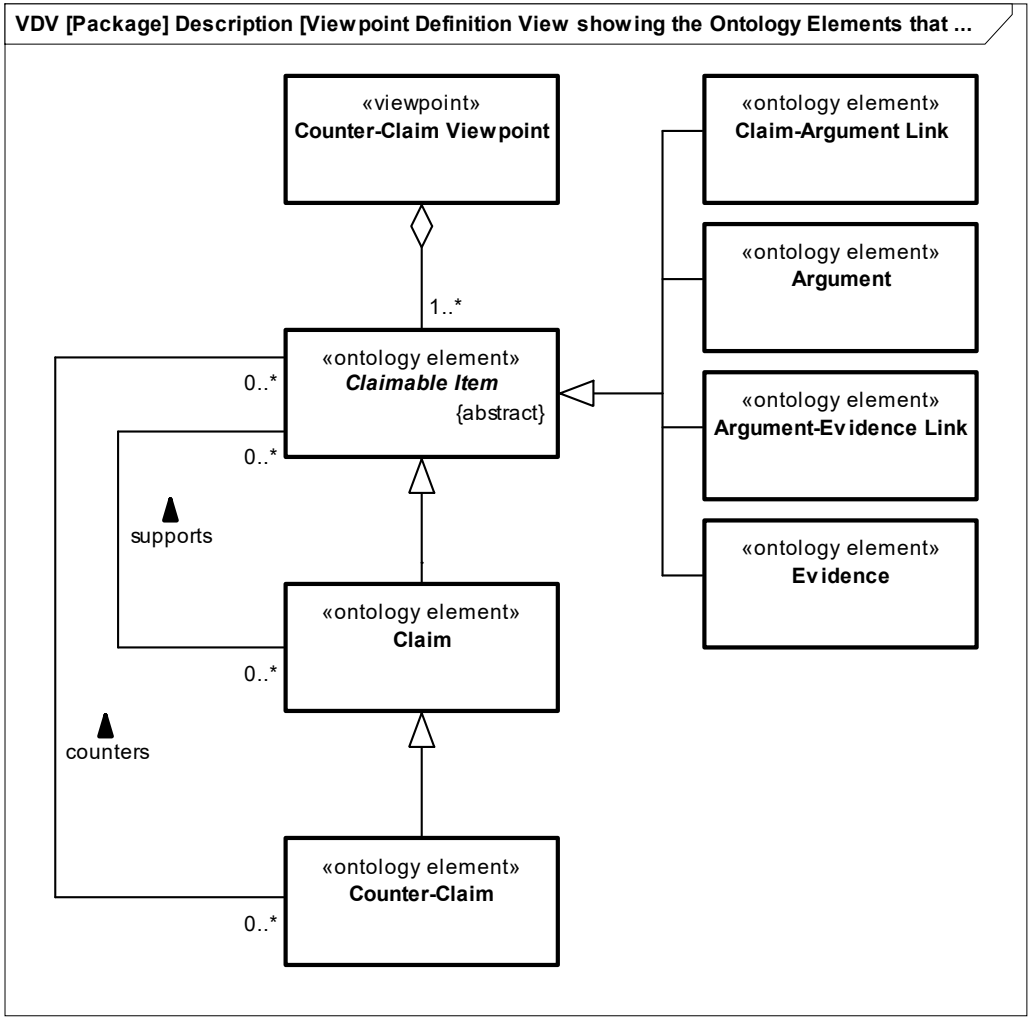
Example EV - Evidence reinforcing the Arguments 'System has been tested' and 'Safety statistics are good'



3.8 VCV showing Counter-Claim Viewpoint aims



VDV showing the Ontology Elements that appear on Counter-Claim Viewpoint



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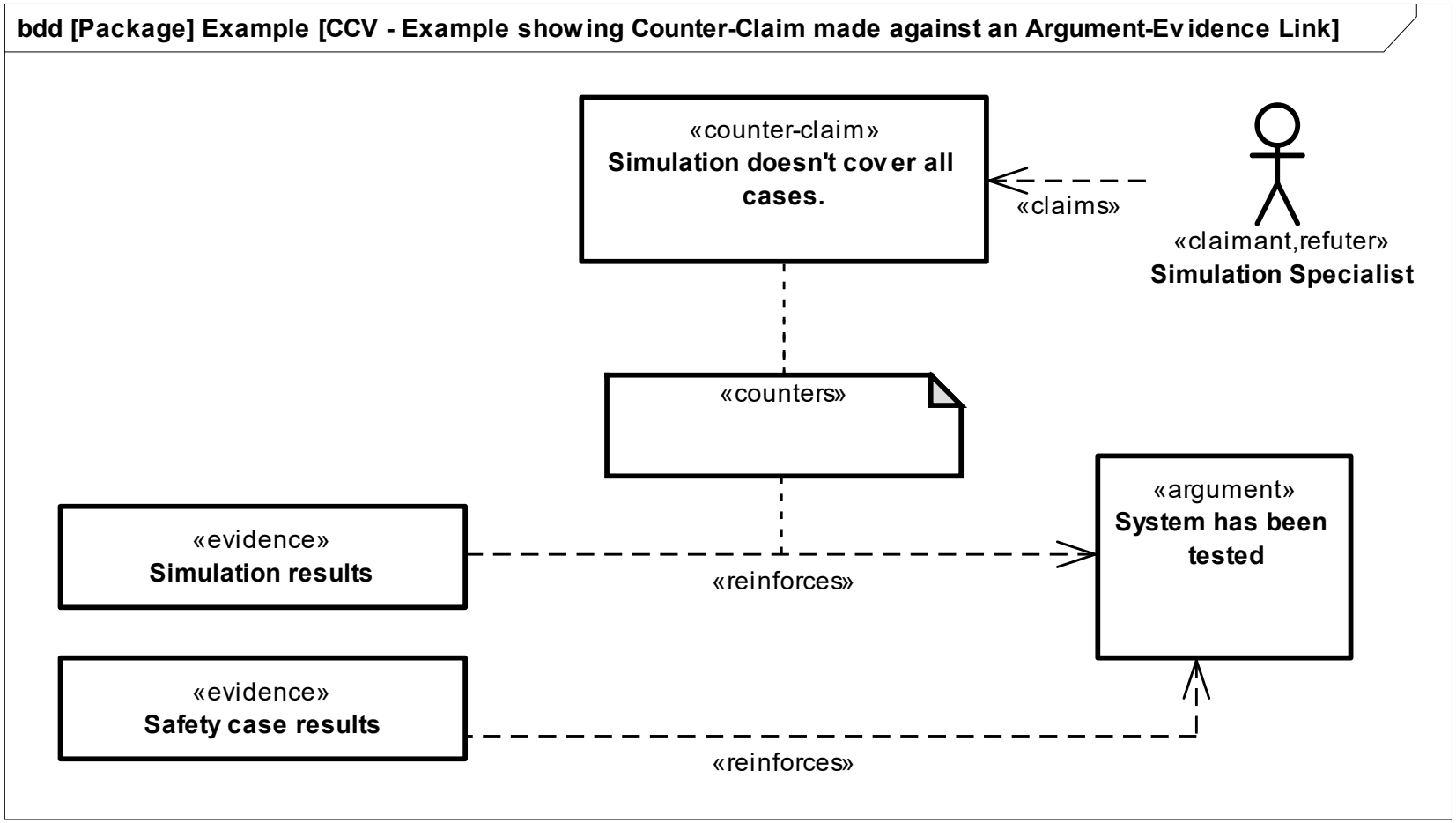
Example CCV - Counter-Claim made against an Argument-Evidence Link



4. Summary

- The Evidence Pattern defines four Viewpoints for the definition of Evidence-Argument-Claim chains:
  - Claim Definition Viewpoint allows Claims to be defined for a particular Subject to show who made the Claims
  - Argument Viewpoint allows the Arguments that support a Claim to be identified
  - Evidence Viewpoint allows any supporting Evidence that reinforces Arguments to be identified.
  - Counter-Claim Viewpoint allows Counter-Claims (or supporting Claims) to be made about any type of Claimable Item

5. Questions