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| <Image of CRM extension logo> |  |

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| **Definition of CRMact**  An extension of CIDOC-CRM to support activity plans |

Proposal for approval by the CIDOC CRM-SIG

Version 0.2

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Contributors: CRM-SIG

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# Introduction

This document describes work which uses and extends the CIDOC Conceptual Reference Model (CRM, ISO21127). The CIDOC-CRM definition document should be read before this document. References to the CIDOC-CRM in this document are taken from CIDOC-CRM version 7.1.1 maintained by CIDOC.

## Scope

The classes and properties of the CIDOC-CRM can be used to describe events that have taken place in the past. Such events are known to us through observation of the events or through observation of the material evidence that such events have produced. CIDOC-CRM classes and properties are not designed to describe future events because future events cannot be evidenced before they occur. Intuitively, we consider future events when expecting an event to occur (such as that the sun will set tonight) or when planning to engage in an activity (such as that I will organise a meeting). There is a variable degree of (un)certainty whether a projected future event will occur, which may depend on a) the consequence of an actor intending a projected future event to actually undertake or participate in that future event at the foreseen moment and/or b) factors outside of anyone’s control (force majeure). From the point of the present, when documentation of the projected future activity occurs, what is actually ontologically at hand is not an event but a conceptual description of what may happen. As such, future events can be described as instances of E89 Propositional Object.

CRMact defines the classes and properties which are necessary for integrating documentation records about plans for future activities and future events. The development of this extension follows discussions of the CIDOC-CRM SIG meetings on modelling legal rules and the application of laws as well as modelling treatment proposals for conservation of cultural heritage objects. These discussions have been broadened to produce a general model for plans presented in this document.

The resulting model is a high level construct extending the CIDOC-CRM to handle documentation of projected future events with regards to their form and intention at the time of their projection and documentation.

## High level constructs

The main elements of this extension are the declaration and modelling of the classes and properties related to ‘Activity Plan’, ‘Event Template’ and ‘Intention to Apply’.

### Activity plan

Instances of *actE2 Activity Plan* can be considered as sets of instructions for undertaking an activity which may be designed to be triggered as a result of an event. For example, an activity which results in breaking the law may trigger the entity that enforces that law to act. The abstract descriptions of future events are instances of the class *actE4 Event Template*. An instance of *actE2 Activity Plan* may be triggered (*actP17 has trigger*) by an instance of *actE4 Event Template* and it foresees (*actP27 foresees*) another instance of *actE4 Event Template* to be executed. When specifying the instance of the *actE4 Event Template* that will trigger a series of actions, we refer to reactive plans, such as disaster recovery plans which are meant to be triggered by a natural disaster (Figure 1).

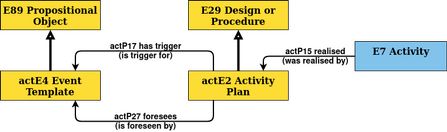


Figure 1: Active and reactive plans.

### Event template

Instances of *actE4 Event Template* are linked to instances of CIDOC-CRM classes which are necessary for the event to happen, such as a specific person taking part at a planned meeting, or a specific river flooding (Figure 2).

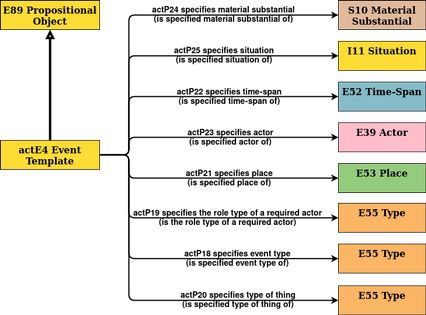


Figure 2: Definition of actE4 Event Template.

A past event can be characterised as a manifestation of an instance of *actE4 Event Template* using the property *actP26 matched template* alongside an indication of the level of match. This can be used to track if past activities took place as planned which is often important for future planning.

### Intention to apply

Planning an event does not necessarily coincide with the intention to execute it. For example, in cultural heritage conservation, there are cases when more than one proposal (instances of *actE2 Activity Plan*) is considered for the conservation of an object. One of them is selected with the intention to execute it. Therefore the intention to execute the plan may be agreed at a separate event, such as when a reviewing committee meets to assess the suitability of the conservation proposals (Figure 3).

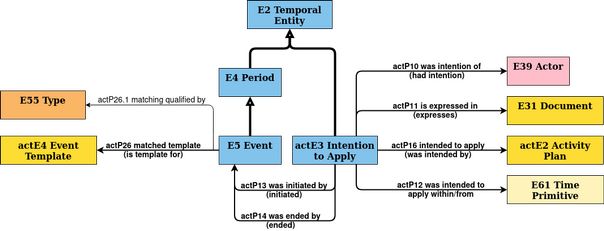


Figure 3: Intention to apply a plan.

## **Status**

The scope notes of the classes and properties in this document have been discussed and approved by the CIDOC-CRM SIG. This extension has not yet been tested widely and therefore changes are anticipated but the basic model should be stable. Not all examples have references yet and some of them are fictitious.

# **CRMact** class hierarchy, aligned with portions from the **CRMsci** and the CIDOC-CRM class hierarchies

This class hierarchy lists:

* all classes declared in CRMact
* all classes declared in CRMsci version 1.2.6 and CIDOC-CRM version 7.1.1 that are declared as superclasses of classes declared in CRMact,
* all classes declared in CRMsci version 1.2.6 or CIDOC-CRM version 7.1.1 that are either domain or range for a property declared in CRMact,
* all classes declared in CRMsci version 1.2.6 and CIDOC-CRM version 7.1.1 that are either domain or range for a property declared in CRMsci version 1.2.3 or CIDOC-CRM version 7.1.1 that is declared as superproperty of a property declared in CRMact,
* all classes declared in CRMsci version 1.2.6 and CIDOC-CRM version 7.1.1 that are either domain or range for a property that is part of a complete path of which a property declared in CRMact is declared to be a shortcut.

Table 1: Class Hierarchy

|  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| [E1](http://www.cidoc-crm.org/cidoc-crm/E1_CRM_Entity) | CRM Entity | | | | | | | | | | | |
| [E2](http://www.cidoc-crm.org/cidoc-crm/E2_Temporal_Entity) | - | Temporal Entity | | | | | | | | | | |
| [actE3](#_toc1052) | - | - | Intention to Apply | | | | | | | | | |
| [E4](http://www.cidoc-crm.org/cidoc-crm/E4_Period) | - | - | Period | | | | | | | | | |
| [E5](http://www.cidoc-crm.org/cidoc-crm/E5_Event) | - | - | - | | | Event | | | | | | |
| [E7](http://www.cidoc-crm.org/cidoc-crm/E7_Activity) | - | - | - | | | - | | Activity | | | | |
| [E77](http://www.cidoc-crm.org/cidoc-crm/E77_Persistent_Item) | - | Persistent Item | | | | | | | | | | |
| [E70](http://www.cidoc-crm.org/cidoc-crm/E70_Thing) | - | - | Thing | | | | | | | | | |
| S10 | - | - | - | | | Material Substantial | | | | | | |
| [E71](http://www.cidoc-crm.org/cidoc-crm/E71_Human-Made_Thing) | - | - | - | | Human-Made Thing | | | | | | | |
| [E28](http://www.cidoc-crm.org/cidoc-crm/E28_Conceptual_Object) | - | - | - | | - | | Conceptual Object | | | | | |
| [actE4](#_toc1069) | - | - | - | | - | | - | | Event Template | | | |
| [E89](http://www.cidoc-crm.org/cidoc-crm/E89_Propositional_Object) | - | - | - | | - | | - | | Propositional Object | | | |
| [E73](http://www.cidoc-crm.org/cidoc-crm/E73_Information_Object) | - | - | - | | - | | - | | - | Information Object | | |
| [E29](http://www.cidoc-crm.org/cidoc-crm/E29_Design_or_Procedure) | - | - | - | | - | | - | | - | - | Design or Procedure | |
| [actE2](#_toc1038) | - | - | - | | - | | - | | - | - | - | Activity Plan |
| [E31](http://www.cidoc-crm.org/cidoc-crm/E31_Document) | - | - | - | | - | | - | | - | - | Document | |
| [E55](http://www.cidoc-crm.org/cidoc-crm/E55_Type) | - | - | - | | - | | - | | Type | | | |
| [E39](http://www.cidoc-crm.org/cidoc-crm/E39_Actor) | - | - | Actor | | | | | | | | | |
| [E52](http://www.cidoc-crm.org/cidoc-crm/E52_Time-Span) | - | Time-Span | | | | | | | | | | |
| [E53](http://www.cidoc-crm.org/cidoc-crm/E53_Place) | - | Place | | | | | | | | | | |
| [E59](http://www.cidoc-crm.org/cidoc-crm/E59_Primitive_Value) | - | Primitive Value | | | | | | | | | | |
| [E61](http://www.cidoc-crm.org/cidoc-crm/E61_Time_Primitive) | - | - | | Time Primitive | | | | | | | | |

## List of external classes used in **CRMact**

Table 2: List of external classes grouped by *m*odel and ordered by *m*odel (exception: CRMbase always goes first) and then by *c*lass identifier.

|  |  |  |  |
| --- | --- | --- | --- |
| Class identifier | Class **name** | Model | Version |
| E2 | Temporal Entity | CIDOC-CRM | 7.1.1 |
| E4 | Period | CIDOC-CRM | 7.1.1 |
| E5 | Event | CIDOC-CRM | 7.1.1 |
| E7 | Activity | CIDOC-CRM | 7.1.1 |
| E28 | Conceptual Object | CIDOC-CRM | 7.1.1 |
| E29 | Design or Procedure | CIDOC-CRM | 7.1.1 |
| E31 | Document | CIDOC-CRM | 7.1.1 |
| E39 | Actor | CIDOC-CRM | 7.1.1 |
| E52 | Time-Span | CIDOC-CRM | 7.1.1 |
| E53 | Place | CIDOC-CRM | 7.1.1 |
| E55 | Type | CIDOC-CRM | 7.1.1 |
| E59 | Primitive Value | CIDOC-CRM | 7.1.1 |
| E61 | Time Primitive | CIDOC-CRM | 7.1.1 |
| E70 | Thing | CIDOC-CRM | 7.1.1 |
| E71 | Human-Made Thing | CIDOC-CRM | 7.1.1 |
| E73 | Information Object | CIDOC-CRM | 7.1.1 |
| E77 | Persistent Item | CIDOC-CRM | 7.1.1 |
| E89 | Propositional Object | CIDOC-CRM | 7.1.1 |
| S10 | Material Substantial | CRMsci | 1.2.6 |

# **CRMact** property hierarchy, aligned with portions from the **CRMsci** and the CIDOC-CRM property hierarchies

This property hierarchy lists:

* all properties declared in CRMact,
* all properties declared in CRMsci version 1.2.6, and CIDOC-CRM version 7.1.1 that are declared as superproperties of properties declared in CRMact,
* all properties declared in CRMsci version 1.2.6 and CIDOC-CRM version 7.1.1 that are part of a complete path of which a property declared in CRMact, is declared to be a shortcut.

Table 3: Property Hierarchy

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Property id** | **Property Name** | | **Entity – Domain** | **Entity - Range** |
| [P67](http://www.cidoc-crm.org/cidoc-crm/P67_refers_to) | refers to (is referred to by) | | E89 Propositional Object | E1 CRM Entity |
| [actP17](#_toc1193) | - | has trigger (is trigger for) | actE2 Activity Plan | actE4 Event Template |
| [actP27](#_toc1338) | - | foresees (is foreseen by) | actE2 Activity Plan | actE4 Event Template |
| [actP10](#_toc1093) | was intention of (had intention) | | actE3 Intention to Apply | E39 Actor |
| [actP11](#_toc1107) | is expressed in (expresses) | | actE3 Intention to Apply | E31 Document |
| [actP12](#_toc1121) | was intended to apply within/from | | actE3 Intention to Apply | E61 Time Primitive |
| [actP13](#_toc1135) | was initiated by (initiated) | | actE3 Intention to Apply | E5 Event |
| [actP14](#_toc1149) | was ended by (ended) | | actE3 Intention to Apply | E5 Event |
| [actP15](#_toc1164) | realised (was realised by) | | E7 Activity | actE2 Activity Plan |
| [actP16](#_toc1179) | intended to apply (was intended by) | | actE3 Intention to Apply | actE2 Activity Plan |
| [actP18](#_toc1209) | specifies event type (is specified event of type) | | actE4 Event Template | E55 Type |
| [actP19](#_toc1223) | specifies the role type of a required actor (is the role type of a required actor) | | actE4 Event Template | E55 Type |
| [actP20](#_toc1237) | specifies type of thing (is specified type of thing of) | | actE4 Event Template | E55 Type |
| [actP21](#_toc1251) | specifies place (is specified place of) | | actE4 Event Template | E53 Place |
| [actP22](#_toc1265) | specifies time-span (is specified time-span of) | | actE4 Event Template | E52 Time-Span |
| [actP23](#_toc1279) | specifies actor (is specified actor of) | | actE4 Event Template | E39 Actor |
| [actP24](#_toc1294) | specifies material substantial (is specified material substantial) | | actE4 Event Template | S10 Material Substantial |
| [actP26](#_toc1322) | matched template (is template for) | | E5 Event | actE4 Event Template |

## List of external properties used in **CRMact**

Table 4: List of external *properties* grouped by *m*odel and ordered by *m*odel and then by *property* identifier.

|  |  |  |  |
| --- | --- | --- | --- |
| **Property** identifier | **Property name** | Model | Version |
| P67 | refers to (is referred to by) | CIDOC-CRM | 7.1.1 |

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# **CRMact** Class Declarations

**actE2** **Activity Plan**

Subclass of:

[E29](http://www.cidoc-crm.org/cidoc-crm/E29_Design_or_Procedure) Design or Procedure

Scope note:

This class comprises plans foreseeing specific predefined activities or kinds of activities taking place. They consist of descriptions of specific constraints, patterns or types of activities that could be realized. They may also foresee that the planned activities are realized at times explicitly foreseen by the actor intending the application of the plan, for instance, to organize a conference, in which case we may talk about “active plans”. Alternatively, times of realization may be foreseen in reaction to external events of a kind foreseen by the plan, for instance the rescue activity after an earthquake following a rescue plan, or a penal action in the case of criminal activity according to a penal code, in which case we may talk about “reactive plans”. The existence of an instance of Activity Plan does not necessarily imply the intention of any Actor to apply it. It may be created together, before or without the will to apply it. For instance, laws are created before they are passed by parliament. Any Activity Plan may require specific conditions for it to be applicable. For example, a plan to excavate a river bank may require that the river is flooded, or my plan to lime plaster my stone wall requires that it is winter (i.e. wet and cold).

Examples:

* the disaster plan of Tate Archives in case of the Thames flooding
* the proposal for conservation work for MS Greek 418 at the Saint Catherine library
* the provisions of Law 3730/2008 of the Greek Government against smoking in work places

In First Order Logic:

actE2(x) ⇒ E29(x)

Properties:

[actP17](#_toc1193) has trigger (is trigger for): [actE4](#_toc1069) Event Template

[actP27](#_toc1338) foresees (is foreseen by): [actE4](#_toc1069) Event Template

**actE3** **Intention to Apply**

Subclass of:

[E2](http://www.cidoc-crm.org/cidoc-crm/E2_Temporal_Entity) Temporal Entity

Scope note:

This class comprises the mental states of individual instances of E39 Actor that intend to or want to apply a particular instance of Activity Plan. This can be understood as the period of time when an individual or group holds a particular will. It binds the activity plan to the actor. The ‘intention to apply’ may be abandoned before the realization of the plan. When the plan is actually realized, the ‘intention to apply’ must necessarily still exist. Characteristically, the passing of a law initiates the intention of a parliament to apply the law. In many cases, the creation of the plan initiates the intention to apply it, and in the case of “active plans” the completed realization of the plan ends the intention. Often, the existence of the ‘intention to apply’ cannot be determined other than by the realization of the plan.

Examples:

* the intention of the German governments, from the Empire to the Federal Republic to apply paragraph 175, making homosexuality a punishable offence, from 1872 to 1991
* the intention of Nicholas Pickwoad to undertake conservation work on MS Greek 418 at the Saint Catherine's Library

In First Order Logic:

actE3(x) ⇒ E2(x)

Properties:

[actP10](#_toc1093) was intention of (had intention): [E3](#_toc8039)9 Actor

[actP11](#_toc1107) is expressed in (expresses): [E31](http://www.cidoc-crm.org/cidoc-crm/E31_Document) Document

[actP12](#_toc1121) was intended to apply within/from: [E61](http://www.cidoc-crm.org/cidoc-crm/E61_Time_Primitive) Time Primitive

[actP13](#_toc1135) was initiated by (initiated): [E5](http://www.cidoc-crm.org/cidoc-crm/E5_Event) Event

[actP14](#_toc1149) was ended by (ended): [E5](http://www.cidoc-crm.org/cidoc-crm/E5_Event) Event

[actP16](#_toc1179) intended to apply (was intended by): [actE2](#_toc8039) Activity Plan

**actE4** **Event Template**

Subclass of:

[E89](http://www.cidoc-crm.org/cidoc-crm/E89_Propositional_Object) Propositional Object

Scope note:

This class comprises templates of events for Activity Plans by providing necessary or desirable constraints to the properties of the foreseen instance of an event, be it on the level of particular items involved or on the level of kinds of processes, items or qualities and quantities involved. Instances of Event Template may be used to recognize that a past event fitted the specification, or for specifying future events. Characteristically, instances of this class are created in association with instances of actE2 Activity Plan, as templates for the events that should trigger the execution of an Activity Plan or as templates for the activities that should take place during the execution of an Activity Plan. For example, we expect a disaster plan for a library to be executed when the disaster happens or the disaster readiness plan to be triggered on the readiness exercise test day.

Examples:

* the template specifying the acceptable humidity levels in the museum store room
* the template specifying the potential for rainy weather conditions at the location and date of my wedding (fictitious)
* the template specifying how to setup a gazebo at my wedding (fictitious)
* the template specifying the sunny weather conditions at the location and date of my wedding (fictitious)
* the template specifying how to take wedding photographs at the park (fictitious)

In First Order Logic:

actE4(x) ⇒ E89(x)

Properties:

[actP18](#_toc1209) specifies event type (is specified event type of): [E55](http://www.cidoc-crm.org/cidoc-crm/E55_Type) Type

[actP19](#_toc1223) specifies the role type of a required actor (is the role type of a required actor): [E39](http://www.cidoc-crm.org/cidoc-crm/E39_Actor) Actor

[actP20](#_toc1237) specifies type of thing (is specified type of thing): [E55](http://www.cidoc-crm.org/cidoc-crm/E55_Type) Type

[actP21](#_toc1251) specifies place (is specifies place of): [E53](http://www.cidoc-crm.org/cidoc-crm/E53_Place) Place

[actP22](#_toc1265) specifies time-span (is specified time-span of): [E52](http://www.cidoc-crm.org/cidoc-crm/E52_Time-Span) Time-Span

[actP23](#_toc1279) specifies actor (is specified actor of): [E39](http://www.cidoc-crm.org/cidoc-crm/E39_Actor) Actor

[actP24](#_toc1294) specifies material substantial (is specified material substantial of): [S10](#_toc8039) Material Substantial

[actP25](#_toc1308) specifies situation (is specified situation of): I11 Situation

# **CRMact** Property Declarations

actP10 **was intention of** (**had intention**)

Domain:

[actE3](#_toc1052) Intention to Apply

Range:

[E39](http://www.cidoc-crm.org/cidoc-crm/E39_Actor) Actor

Quantification:

many to many (0,n:0,n)

Scope note:

This property associates an instance of apE3 Intention to Apply with an instance or instances of the E39 Actors intending to apply a apE2 Activity Plan.

Examples:

* The intention to apply the Law 3730/2008 against smoking in work places (actE3) was intention of the Greek government (E39).

In First Order Logic:

actP10(x,y) ⇒ actE3(x)

actP10(x,y) ⇒ E39(y)

actP1**1** **is expressed in** (**expresses**)

Domain:

[actE3](#_toc1052) Intention to Apply

Range:

[E31](http://www.cidoc-crm.org/cidoc-crm/E31_Document) Document

Quantification:

many to many (0,n:0,n)

Scope note:

This property associates an instance of actE3 Intention to Apply with an instance of E31 Document that formally represents and externalizes this intention in a symbolic form.

Examples:

* The Tate Archives disaster planning document (E31) expresses the intention of undertaking certain actions (actE3) to save the collection in the event of the Thames flooding.

In First Order Logic:

actP11(x,y) ⇒ actE3(x)

actP11(x,y) ⇒ E31(y)

actP12 **was intended to apply within/from**

Domain:

[actE3](#_toc1052) Intention to Apply

Range:

[E61](http://www.cidoc-crm.org/cidoc-crm/E61_Time_Primitive) Time Primitive

Quantification:

many to many (0,n:0,n)

Scope note:

This property associates an instance of actE3 Intention to Apply with the declarative time constraint foreseen by the intending party for the actual application of the activity plan. The intending party may alter the time constraint over time. In case the newly set time constraint narrows a previously set time constraint, one may regard both constraints as being simultaneously true and consistent. In the case that the newly set time constraint does not just narrow the previous one (typically delaying the foreseen time of application), it should be regarded as a modification of the overall ‘intention to apply’. The result of this modification should be regarded as an ‘intention to apply’ in its own right that is part of an overall instance of actE3 Intention to Apply, which continues to be held.

Examples:

* The enforcement of Law 3730/2008 against smoking in public/work places (actE3) was intended to apply within/from 1st of July, 2009 (E61).

In First Order Logic:

actP12(x,y) ⇒ actE3(x)

actP12(x,y) ⇒ E61(y)

actP1**3** **was initiated by** (**initiated**)

Domain:

[actE3](#_toc1052) Intention to Apply

Range:

[E5](http://www.cidoc-crm.org/cidoc-crm/E5_Event) Event

Quantification:

many to many (0,n:0,n)

Scope note:

This property associates the beginning of an instance of actE3 Intention to Apply with an explicit event initiating it. Often, the initiation of the ‘intention to apply’ is implicit in the creation of the activity plan.

Examples:

* The intention to apply of Law 3730/2008 against smoking in public/work places (E3) was initiated by the signature and publication of the law (E5) in the government paper as ΦΕΚ 262/τ. Α'/23-12-2008 on 23/12/2008.

In First Order Logic:

actP13(x,y) ⇒ actE3(x)

actP13(x,y) ⇒ E5(y)

actP1**4** **was ended by** (**ended**)

Domain:

[actE3](#_toc1052) Intention to Apply

Range:

[E5](http://www.cidoc-crm.org/cidoc-crm/E5_Event) Event

Quantification:

many to many (0,n:0,n)

Scope note:

This property associates an instance of actE3 Intention to Apply with an explicit activity or event terminating it. Often, the termination of the ‘intention to apply’ is implicit in the realization of the activity plan. In some cases, it may be silently forgotten.

Examples:

* Storing MS Greek 418 into its new phase box ended the intention to conserve it.
* The intention to apply §175 StGB of the German federal law (declaring homosexuality as a crime) was ended by the deletion of §175 StGB in 1994 by the German Budestag (E7).

In First Order Logic:

actP14(x,y) ⇒ actE3(x)

actP14(x,y) ⇒ E5(y)

actP1**5** **realised** (**was realised by**)

Domain:

[E7](http://www.cidoc-crm.org/cidoc-crm/E7_Activity) Activity

Range:

[actE2](#_toc1038) Activity Plan

Quantification:

many to many (0,n:0,n)

Scope note:

This property associates an instance of E7 Activity with the instance of actE2 Activity Plan of which it is regarded as being a valid execution by the actors holding the ‘intention to apply’. To be valid the E61 Time Primitive associated with the instance of E7 Activity must fall within the E61 Time Primitive foreseen in the actE3 Intention to Apply.

Examples:

* The conservation of MS Greek 418 realised the proposals for its conservation.
* The delivery of a fine to a citizen in the initial enforcement period of Law 3730/2008 against smoking in public/work places realised provisions of Law 3730/2008 of the Greek Government against smoking in work places.

In First Order Logic:

actP15(x,y) ⇒ E7(x)

actP15(x,y) ⇒ actE2(y)

actP1**6** **intended to apply** (**was intended by**)

Domain:

[actE3](#_toc1052) Intention to Apply

Range:

[actE2](#_toc1038) Activity Plan

Quantification:

many to many (0,n:0,n)

Scope note:

This property associates an instance of actE3 Intention to Apply with the instance of actE2 Activity Plan that it intended to realize.

Examples:

* The decision in FEK intended to apply the provisions of the Law 3730/2008 of the Greek Government against smoking in work places.

In First Order Logic:

actP16(x,y) ⇒ actE3(x)

actP16(x,y) ⇒ actE2(y)

actP1**7** has trigger (**is trigger for**)

Domain:

[actE2](#_toc1038) Activity Plan

Range:

[actE4](#_toc1069) Event Template

Subproperty of:

[E89](http://www.cidoc-crm.org/cidoc-crm/E89_Propositional_Object) Propositional Object. [P67](http://www.cidoc-crm.org/cidoc-crm/P67_refers_to) refers to (is referred to by): [E1](http://www.cidoc-crm.org/cidoc-crm/E1_CRM_Entity) CRM Entity

Quantification:

many to many (0,n:0,n)

Scope note:

This property associates an instance of actE2 Activity Plan with an instance of actE4 Event Template, which specifies the qualities of the event that will trigger the activity plan. This property can be used to describe the kind of event that should cause a reactive activity plan to be executed.

Examples:

* The disaster plan of the Tate Archives has trigger the event template, which specifies the event of river Thames flooding reaching Millbank.

In First Order Logic:

actP17(x,y) ⇒ actE2(x)

actP17(x,y) ⇒ actE4(y)

actP1**8** **specifies event type** (is specified event type of)

Domain:

[actE4](#_toc1069) Event Template

Range:

[E55](http://www.cidoc-crm.org/cidoc-crm/E55_Type) Type

Quantification:

many to many (0,n:0,n)

Scope note:

This property associates an instance of actE4 Event Template with the E55 Type of the E5 Event, which the template specifies.

Examples:

* The disaster plan of the Tate Archives is triggered by the river Thames flooding, which specifies event type: "flood".

In First Order Logic:

actP18(x,y) ⇒ actE4(x)

actP18(x,y) ⇒ E55(y)

actP1**9** specifies the role type of a required actor (is the role type of a required actor)

Domain:

[actE4](#_toc1069) Event Template

Range:

[E55](http://www.cidoc-crm.org/cidoc-crm/E55_Type) Type

Quantification:

many to many (0,n:0,n)

Scope note:

This property associates an instance of actE4 Event Template with the E55 Type of the role required by the template for the participation of some instance of E39 Actor. The property does not require a specific instance of E39 Actor to be specified by actP23 specifies actor (is specified actor of). This property corresponds to the CIDOC-CRM property P14.1 in the role of.

Examples:

* The template specifying my wedding specifies the role of a required actor as disc jockey [so that someone plays music for the wedding guests].

In First Order Logic:

actP19(x,y) ⇒ actE4(x)

actP19(x,y) ⇒ E55(y)

actP**20** specifies type of thing (is specified type of thing of)

Domain:

[actE4](#_toc1069) Event Template

Range:

[E55](http://www.cidoc-crm.org/cidoc-crm/E55_Type) Type

Quantification:

many to many (0,n:0,n)

Scope note:

This property associates an instance of actE4 Event Template with the type (E55 Type) of a thing, which the template specifies be used or be present for the specified event. On the other hand, a particular instance of a thing that is required should be specified using the property actP24 specifies material substantial (is specified material substantial).

Examples:

* My wedding plan requires an event template, which specifies type of thing: “wedding ring” [but does not specify which instance of a wedding ring it is].

In First Order Logic:

actP20(x,y) ⇒ actE4(x)

actP20(x,y) ⇒ E55(y)

actP**21** specifies **place** (is specified **place** of)

Domain:

[actE4](#_toc1069) Event Template

Range:

[E55](http://www.cidoc-crm.org/cidoc-crm/E55_Type) Type

Quantification:

many to many (0,n:0,n)

Scope note:

This property associates an instance of actE4 Event Template with the instance of E53 Place which is specified by the template as the place of the specified event.

Examples:

* The template specifying my wedding, specifies place the location of Cardiff Castle for the wedding party to take place.

In First Order Logic:

actP21(x,y) ⇒ actE4(x)

actP21(x,y) ⇒ E55(y)

actP**22** specifies **time-span** (is specified **time-span** of)

Domain:

[actE4](#_toc1069) Event Template

Range:

[E52](http://www.cidoc-crm.org/cidoc-crm/E52_Time-Span) Time-Span

Quantification:

many to many (0,n:0,n)

Scope note:

This property associates an instance of actE4 Event Template with the instance of E52 Time-span which is specified by the template as being the time-span for the specified event.

Examples:

* The template specifying my wedding, specifies time-span the 12th of August 2006 between 14:00 and 23:00, for the wedding to take place.

In First Order Logic:

actP22(x,y) ⇒ actE4(x)

actP22(x,y) ⇒ E52(y)

actP**23** specifies **actor** (is specified **actor** of)

Domain:

[actE4](#_toc1069) Event Template

Range:

[E39](http://www.cidoc-crm.org/cidoc-crm/E39_Actor) Actor

Quantification:

many to many (0,n:0,n)

Scope note:

This property associates an instance of actE4 Event Template with the instance of E39 Actor specified by the template as taking part in the specified event.

Examples:

* The template specifying my wedding, specifies actor the Rev. Glyn Tidwell be present to undertake the wedding service.
* The event template for the treatment proposal for MS Greek 418 specifies actor the conservator Nicholas Pickwoad be present to undertake the repair.

In First Order Logic:

actP23(x,y) ⇒ actE4(x)

actP23(x,y) ⇒ E39(y)

actP**24** specifies material substantial (is specified material substantial of)

Domain:

[actE4](#_toc1069) Event Template

Range:

[S10](#_toc8039) Material Substantial

Quantification:

many to many (0,n:0,n)

Scope note:

This property associates an instance of actE4 Event Template with an instance of S10 Material Substantial, which the template specifies be used or be present during the specified event.

Examples:

* The event template, which triggers the disaster plan of the Tate Archives specifies material substantial the fluid body of the river Thames (S14).

In First Order Logic:

actP24(x,y) ⇒ actE4(x)

actP24(x,y) ⇒ S10(y)

actP**25** specifies **situation** (is specified **situation** of)

Domain:

[actE4](#_toc1069) Event Template

Range:

[I](#_toc8039)11 Situation

Quantification:

many to many (0,n:0,n)

Scope note:

This property associates an instance of actE4 Event Template with the instance of I11 Situation which the template specifies be observed. This property can be used to describe the properties and values to be observed for an event to trigger a reactive plan. It can also be used to describe the properties and values to monitor while working towards fulfilling an active plan.

Examples:

* The event template which triggers the disaster plan of the Tate Archives specifies situation that the depth of the river Thames is 10 meters (i.e. about to overflow). (fictitious)

In First Order Logic:

actP25(x,y) ⇒ actE4(x)

actP25(x,y) ⇒ I11(y)

actP**26** **matched template** (is **template for**)

Domain:

[E5](http://www.cidoc-crm.org/cidoc-crm/E5_Event) Event

Range:

[actE4](#_toc1069) Event Template

Quantification:

many to many (0,n:0,n)

Scope note:

This property associates an instance of E5 Event with an instance of actE4 Event Template which it matches. The event matches the specified template when all of the instances recorded by the event template properties are observed during the event.

Examples:

* My wedding matched template the template of my wedding which specified that it takes place on the 12th of August, at Cardiff Castle with the Rev Glyn Tidwell taking the service.

In First Order Logic:

actP26(x,y) ⇒ E5(x)

actP26(x,y) ⇒ actE4(y)

Properties:

actP26.1 matching qualified by: E55 Type

actP**27** **foresees** (is **foreseen by**)

Domain:

[actE2](#_toc1038) Activity Plan

Range:

[actE4](#_toc1069) Event Template

Quantification:

many to many (1,n:0,n)

Scope note:

This property associates an instance of actE2 Activity Plan with an instance of actE4 Event Template, which specifies constraints for the activity intended or foreseen by that instance of actE2 Activity Plan.

Examples:

* The disaster plan of the Tate Archives foresees the event template which specifies the water-tight doors of the archive store rooms are shut.
* My wedding plan foresees the event template which specifies the date (12th August), place (Cardiff Castle) and the minister (Rev Glyn Tidwell) taking the service.

In First Order Logic:

actP27(x,y) ⇒ actE2(x)

actP27(x,y) ⇒ actE4(y)

# Works Cited

# Amendments

Version 0.2 is the first published version of CRMact.