

fig. 3 reasoning about temporal information

This second example shows how the CRM handles reasoning about temporal information. Four of the main hierarchy branches are included in this view: E2 Temporal Entity, E52 Time-Span, E77 Persistent Item and E53 Place.

The E2 Temporal Entity class is an abstract class (i.e. it has no direct instances) that serves to group together all classes with a temporal component, such as instances of E4 Period, E5 Event and E3 Condition State.

An instance of E52 Time-Span is simply a temporal interval that does not make any reference to cultural or geographical contexts (unlike instances of E4 Period, which *took place at* a particular instance of E53 Place). Instances of E52 Time-Span are sometimes identified by instances of E49 Time Appellation, often in the form of E50 Date.

Both E52 Time-Span and E4 Period have transitive properties. E52 Time-Span has the transitive property *P86 falls within (contains)*, denoting a purely incidental inclusion; whereas E4 Period has the transitive property *P9 consists of (forms part of)* that supports the decomposition of instances of E4 Period into their constituent parts. For example, the E52 Time-Span during which a building is constructed might *falls within* the E52 Time-Span of a particular government, although there is no causal or contextual connection between the two instances of E52 Time-Span; conversely, the E4 Period of the Chinese Song Dynasty *consists of* the Northern Song Period and the Southern Song Period.

Instances of E52 Time-Span are related to their outer bounds (i.e. their indeterminacy interval) by the property *P82 at some time within*, and to their inner bounds via the property *P81 ongoing throughout*. The range of these properties is the E61 Time Primitive class, instances of which are treated by the CRM as application or system specific date intervals that are not further analysed.

Class & Property Hierarchies

Although they do not provide comprehensive definitions, compact monohierarchical presentations of the class and property IsA hierarchies have been found to significantly aid comprehension and navigation of the CRM, and are therefore provided below.

The class hierarchy presented below has the following format:

- Each line begins with a unique class identifier, consisting of a number preceded by the letter "E" (originally denoting "entity," although now replaced by convention with the term "class").
- A series of hyphens ("-") follows the unique class identifier, indicating the hierarchical position of the class in the IsA hierarchy.
- The English name of the class appears to the right of the hyphens.