### 613 – Christian-Emil’s list of candidates for WIS

#### CRMbase Candidates for WIS

In CRM base one can find the possible WIS by a text search '⇔' or variants over  'implies'. Six of the shortcuts in CRM are of the form <the long path> is equivalent to <the shortcut property>. These are:

* P125 used object of type (was type of object used in),
* P156 occupies (is occupied by),
* P167 was within (includes),
* P171 at some place within,
* P172 contains
* P195 was a presence of (had presence)
* (P199?)

In addition, **P7** and **P156** implies a long path:

##### P7 took place at (witnessed):

Therefore, this property implies the more fully developed path from E4 Period through P161 has spatial projection, E53 Place, P89 falls within to E53 Place, where the intermediate place is also defined in the same geometric system.

##### P156 occupies (is occupied by):

This property implies the fully developed path from E18 Physical Thing through P196 defines, E92 Spacetime Volume, P161 has spatial projection to E53 Place.

(by the way the quantification (0,1:0,n) of P156 may be wrong here since "Therefore, there is a 1:1 relation between the instance E18 Physical Thing and the instance of E53 Place it occupies")

#### The following have implications in the FOL and imply the long path (for CRMbase)

##### P26 moved to (was destination of)

P26(x,y) ⇒ (∃z)[ E53(z) ∧ P7(x,z) ∧ P89(y,z)]

##### P27 moved from (was origin of)

P27(x,y) ⇒ (∃z)[ E53(z) ∧ P7(x,z) ∧ P89(y,z)]

##### P46 is composed of (forms part of)

P46(x,y) ⇒ (∃uzw)[E93(u) ∧ P195i (x,u) ∧  E52(z) ∧ P164(u,z) ∧  E93(w) ∧ P195i (w,y) ∧  P164(w,z) ∧ P10(w,u)]

##### P101 had as general use (was use of)

P101(x,y) ⇒ (∃z)[E7(z) ∧ P16i(,x,z) ∧  P2(z,y)]

##### P186 produced thing of product type (is produced by)

P186(x,y) ⇒ (∃z) [E24(z) ∧ P108(x,z) ∧  P2(z,y)]

#### For CRMarchaeo

only one shortcut is declared and it doesn’t have an FOL axiom:

*AP21 contains (is contained in)* is a shortcut for the more detailed path from E18 Physical Thing through *AP18i is embedded*, A7 Embedding, *AP19 is embedding in*, A2 Stratigraphic Volume Unit.