Issue 702

redraft the "corresponds to" statements in the scope notes of temporal primitive properties in CRMbase

Temporal Primitives to Allen Operators

The scope notes of the temporal primitives contain hard-to-read statements about the relationship to the Allen relations. For example:

P173 starts before or with the end of (ends after or with the start of)

> This property corresponds to the disjunction (logical OR) of the following Allen temporal relations (Allen, 1983): {before, meets, met-by, overlaps, starts, started-by, contains, finishes, finished-by, equals, during, overlapped by}.

This statement would correspond to this equally hard-to-read FOL:

$P173(x,y) \Leftrightarrow AP22(x,y) \lor AP23(x,y) \lor AP23i(x,y) \lor AP24(x,y) \lor AP24i(x,y) \lor AP25(x,y) \lor AP25i(x,y) \lor AP26(x,y) \lor AP26i(x,y) \lor AP27(x,y) \lor AP27i(x,y) \lor AP28(x,y)$

(The $\Leftarrow$ direction is fine, but for $\Rightarrow$ we assume that all Temporal Entities will eventually end and all pairs of Temporal Entities will eventually belong to one Allen relation, even if both haven't ended yet. This is probably not a very strong assumption, but it should be mentioned somewhere.)

However, the AP properties are part of CRMarchaeo, so we can't use this FOL. Also, I doubt it would clarify things in CRMbase.

I thought about a section in the CRMbase introduction to replace these statements, but I now think it is just too specific for the introduction.

→ simply leave the statements out in CRMbase? George: no
→ or add a comment "for details see CRMarchaeo"?
→ for a formalization see CRMarchaeo, **or point to the migration path at the end**

Side issue: If P173, P174, P175 and P184 are irreflexive, the respective equivalences may hold only if one excludes the comparison of a temporal entity with itself, ie. the case where x=y, which means that *AP22 is equal in time to (x,y)* is true. And I don't see why this is not allowed.

P173 starts before or with the end of   "irreflexive" not mentioned (by mistake?)
P174 starts before the end of   irreflexive
P175 starts before or with the start of   irreflexive
P184 ends before or with the end of   irreflexive

→ can I make this a small separate issue?

Allen Operators to Temporal Primitives

The more important direction is the migration path from existing Allen relations to the temporal primitives:

AP22 ⇔ P175 ∧ P175i ∧ P184 ∧ P184i
AP23 ⇔ P176i ∧ P184 ∧ P184i
AP24 ⇔ P175 ∧ P175i ∧ P185
AP25 ⇔ P176i ∧ P185
AP26 ⇔ P176 ∧ P174i ∧ P185
AP27 ⇔ P182 ∧ P173i
AP28 ⇔ P183

(No further assumptions needed for the ⇔.)

→ add this to the CRMarchaeo scope notes / FOL? Or in the section "Allen Operators" in the CRMarchaeo introduction?