### P121 overlaps with & P122 borders with; edit the scope notes –HW by MD

#### P121 overlaps with

The changes from v6.2.9 are marked in **blue**:

##### OLD scope note

**P121 overlaps with**

Domain: E53 Place

Range: E53 Place

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

Scope note: This symmetric property associates an instance of E53 Place with another instance of E53 Place geometrically overlapping it.

It does not specify anything about the shared area. This property is purely spatial, in contrast to the temporal overlaps described by pxxx, pxxy or pxxz, and and, spatio temporal overlaps described by p132 spatiotemporally overlaps with.

Examples:

* the territory of the United States (E53) overlaps with the Arctic (E53)
* The maximal extent of the Greek Kingdom (E53) overlaps with the maximal extent of the Ottoman Empire(E53)

In First Order Logic:

 P121(x,y) ⊃ E53(x)

 P121(x,y) ⊃ E53(y)

 P121(x,y) ⊃ P121(y,x)

##### New scope note

The changes from v6.2.9 are marked in **blue**:

**P121 overlaps with**

Domain: E53 Place

Range: E53 Place

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

Scope note: This symmetric property associates an instance of E53 Place with another instance of E53 Place geometrically overlapping it.

It does not specify anything about the shared area. This property is purely spatial. It does not imply that phenomena that define, by their extent, places related by P121 overlaps with have ever covered a common area at the same time or even coexisted. In contrast, spatiotemporal overlaps described by P132 spatiotemporally overlaps are the total of areas simultaneously covered by the related spacetime volumes.

Examples:

* the territory of the United States (E53) *overlaps with* the Arctic (E53)
* the maximal extent of the Kingdom of Greece (1832-1973) (E53) *overlaps with* the maximal extent of the Republic of Turkey (29 October 1923 to now) (E53)

In First Order Logic:

 P121(x,y) ⇒ E53(x)

 P121(x,y) ⇒ E53(y)

 P121(x,y) ⇒ P121(y,x)

#### P122 borders with

##### OLD scope note

**P122 borders with**

Domain: E53 Place

Range: E53 Place

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

Scope note: This symmetric property associates an instance of E53 Place with another instance of E53 Place which shares a part of its borders.

This property is purely spatial, in contrast to time properties, which are purely temporal.

Examples:

* Scotland (E53) *borders with* England (E53)

In First Order Logic:

 P122(x,y) ⊃ E53(x)

 P122(x,y) ⊃ E53(y)

 P122(x,y) ⊃ P121(y,x)

##### New scope note

**P122 borders with**

Domain: E53 Place

Range: E53 Place

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

Scope note: This symmetric property associates an instance of E53 Place with another instance of E53 Place which shares a part of its border.

This property is purely spatial. It does not imply that the phenomena that define, by their extent, places related by P122 borders with have ever shared a respective border at the same time or even coexisted. In particular, this may be the case when the respective common border is formed by a natural feature.

Examples:

* Scotland (E53) *borders with* England (E53)

In First Order Logic:

 P122(x,y) ⇒ E53(x)

 P122(x,y) ⇒ E53(y)

 P122(x,y) ⇒ P122(y,x)