In OWL, we have:

```
ObjectProperty: touch

SubPropertyOf: topologicalRelation

SubPropertyChain: inverse(lod1Solid) ° hasSpa-
tialRelation ° connected ° lod1Solid
```

Analogously, we can define other semantic relations between buildings.

4. CONCLUSIONS

This position paper collected the very first ideas on semantic enrichment of 3D city models. Spatial ontologies are designed to capture concepts, properties, constraints or rules, and relations. Relations can be expressed between instances or between classes (class relations). Relations can have a spatial component, and therefore be spatial or non-spatial. Relations can be not only binary, but also ternary or with a greater cardinality. Current models, such as CityGML, provide a description of concepts and their properties in application domains. CityGML structuring of concepts is mainly based on a hierarchy of parts/subparts. An encouraging approach would be to add spatial constraints and spatio-semantic relations to CityGML, paving the way for the overcoming of ontological impedance.

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