Symbolic Artificial Intelligence

Project : Activities application reducing exposure to pollution

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1. Context

The main goal of our application is to propose different paths to users wanting to do an activity (biking, walking, jogging). Each of the proposed paths will have its advantages. Two main types of paths exist. On the one hand, a user can define his departure adress and arrival address, the part of the city where he wants to do his activity and the activity he wants to perform. In this case different types of paths will be proposed. On the other hand, the user can choose predefined paths which are more touristic and where all the above parameters are already fixed.

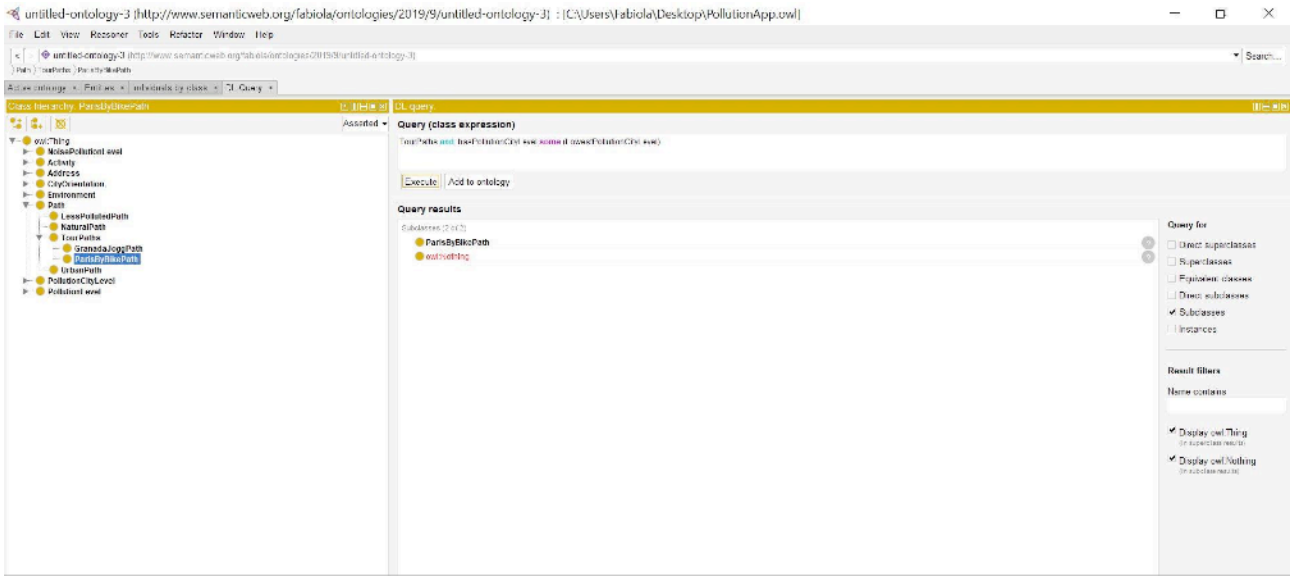
In the first case, different types of path will different advantages will be given. The first one is a path with the minimum pollution. This level of pollution depends on the city. Consequently, the application will propose a path with the least exposure to pollution according to the city. However, sometimes the level of pollution can be low in a city but can still be high if it is compared to the standard levels of pollution. For this reason, the user will be informed of the standard pollution level aswell.
The second path, in the same way, the user can choose a path with the least exposure to noise pollution. Finally, the application will propose paths according to the environment (urban or natural). If the path is a ‘natural path’ this means that the user will do his activity in natural environments such as parks rather than in the city.

In the second case, if the user chooses predefined paths such as the ParisByBike Tour, all the parameters will be predefined. For instance, the ParisByBike Tour is a Tour with the least CO_2 pollution while the Granada Tour is a Tour with the least noise pollution.

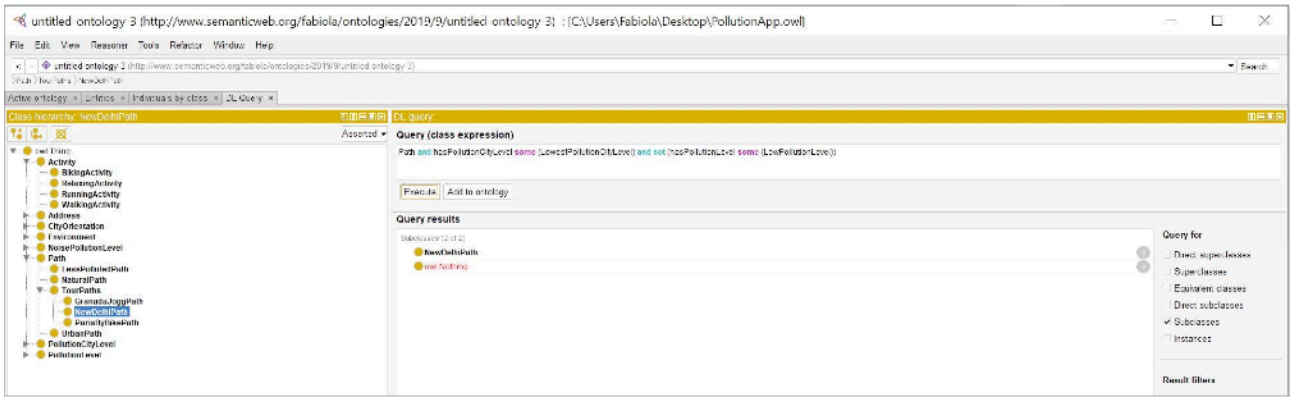
2. Context

To achieve whether the ontology is consistent, we used the reasoner. We also tried some queries. For example :

Query 1 : this query needs to show us the predefined tours where the given path will have the lowest city CO2 pollution.



Query 2 : this query needs to show us the predefined path where the pollution level of the city will be low but compared to the standard norms, the level is high.



Query 3 : this query needs to show us the path where the noise pollution level is low.