BRIDGING GEOSPATIAL DATA MODELS: SEMANTIC ALIGNMENT WITH OPEN STREET MAP

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KEY GLOBAL GEOSPATIAL DATA TOPICS - UN-GGIM (2019)

Land Cover and Land Use:

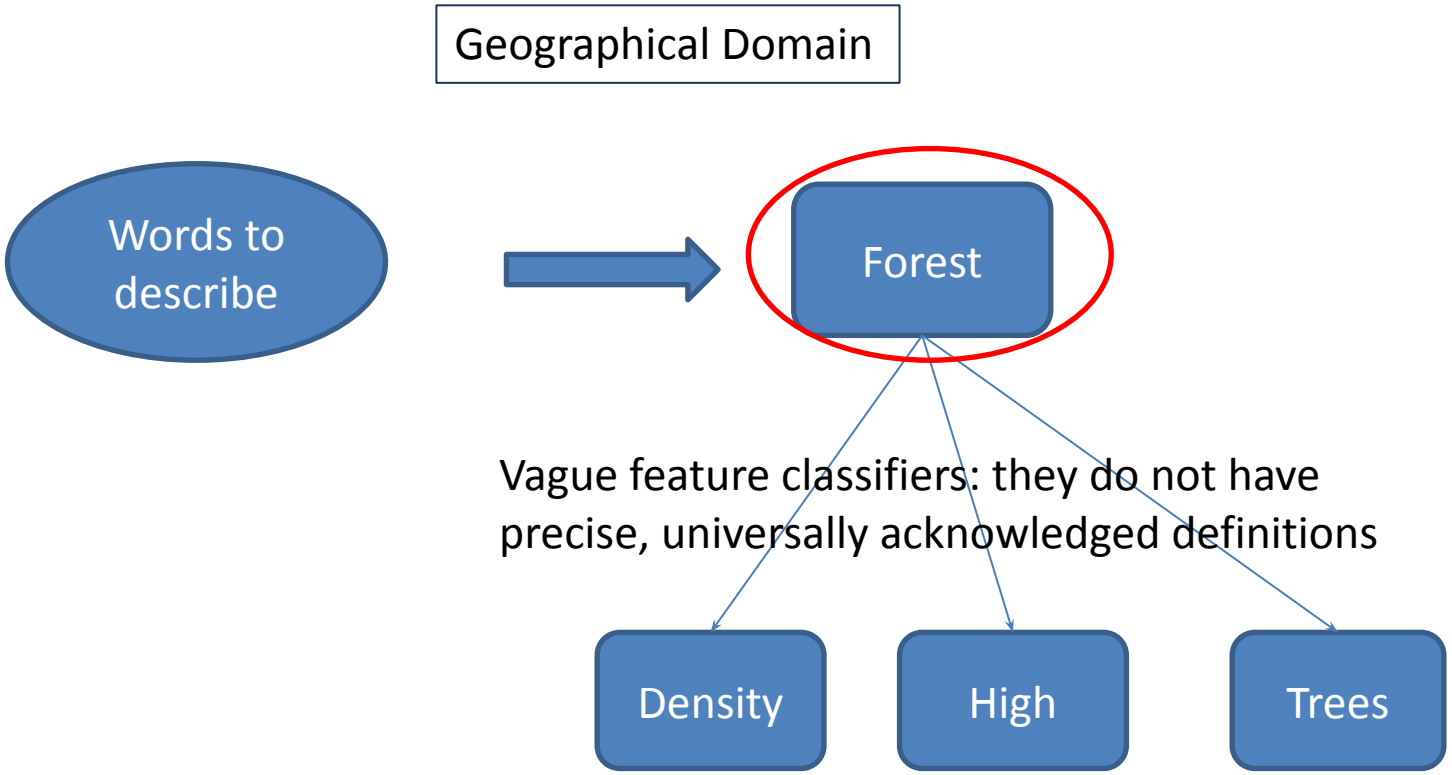
-Artificial areas
-Agriculture areas
-Forests
-Semi-natural areas
-Wet areas
-Bodies of water

-Develop land management policies
-Understand the spatial patterns of biodiversity and predict the effects of climate change.
-It can also help predict other phenomena such as erosion or flooding.
-It is critical data in national biodiversity assessments, conservation efforts and water quality monitoring.
-Informs the impacts of land management, especially changes in natural resources, agriculture, conservation and urban developments.

CARTOGRAPHIC PRODUCTS WITH LAND USE AND COVERAGE DATA

However, according to the responsible mapping agencies, data acquisition, semantic definition and modeling show variability.

- Vagueness can be consider as a lack of clearly defined criteria for the applicability of a concept. Thus, it is a property of language not of the world itself (Bennett, 2001)



COMPLETENESS AND INTEGRATION OF DATA IN BRAZILIAN TOPOGRAPHIC MAPPING

Topographic map

-The challenges of maintaining and extending the coverage

-Techniques used to produce it are costly and time-consuming

-Data from various sources updated frequently

The scope of the investigation is limited to the semantic alignment between the official Brazilian model (ET.EDGV 3.0) and the OSM model of land use and land cover data at a scale of 1:25,000

METHOD

Open AI Querry

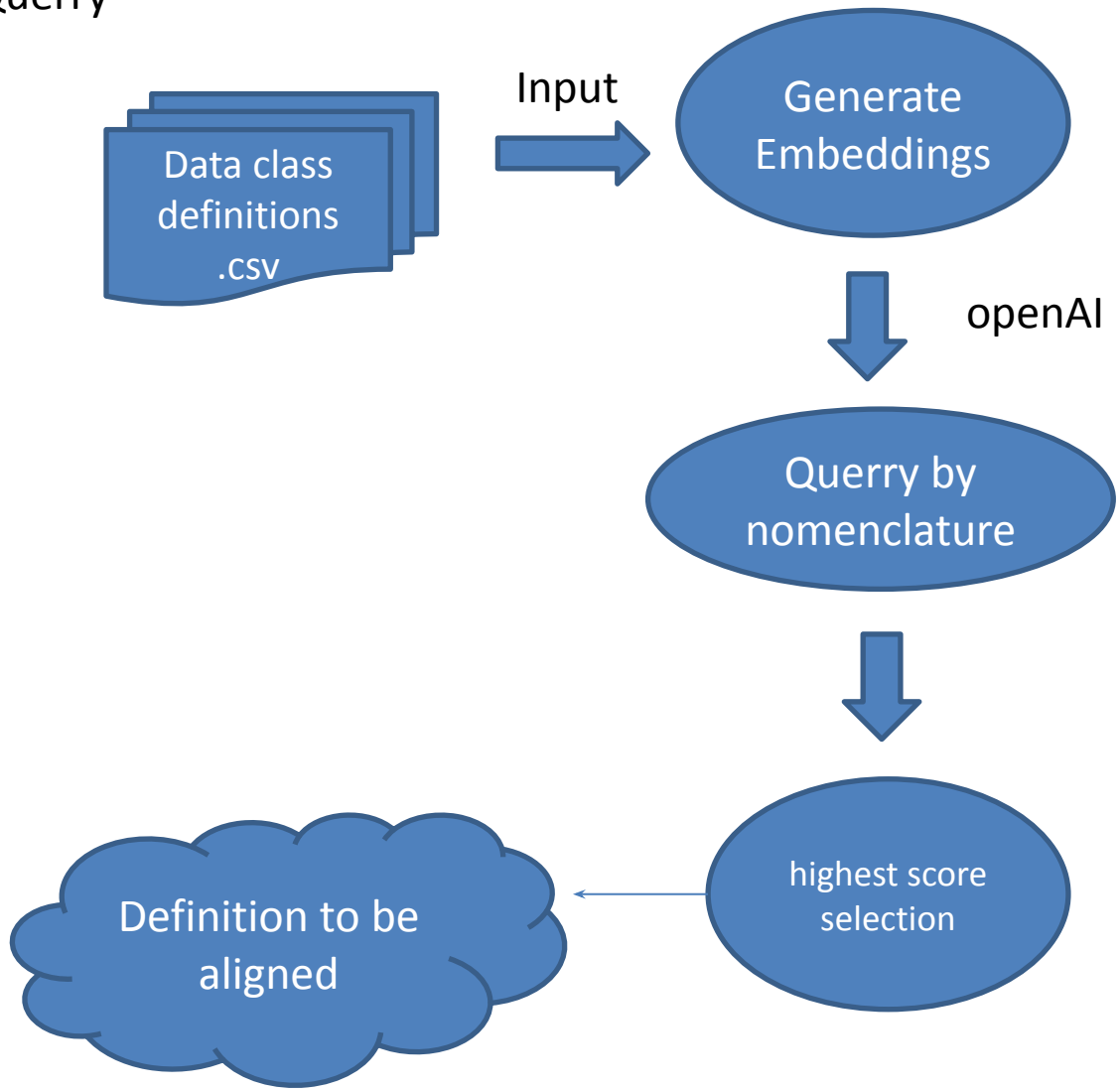
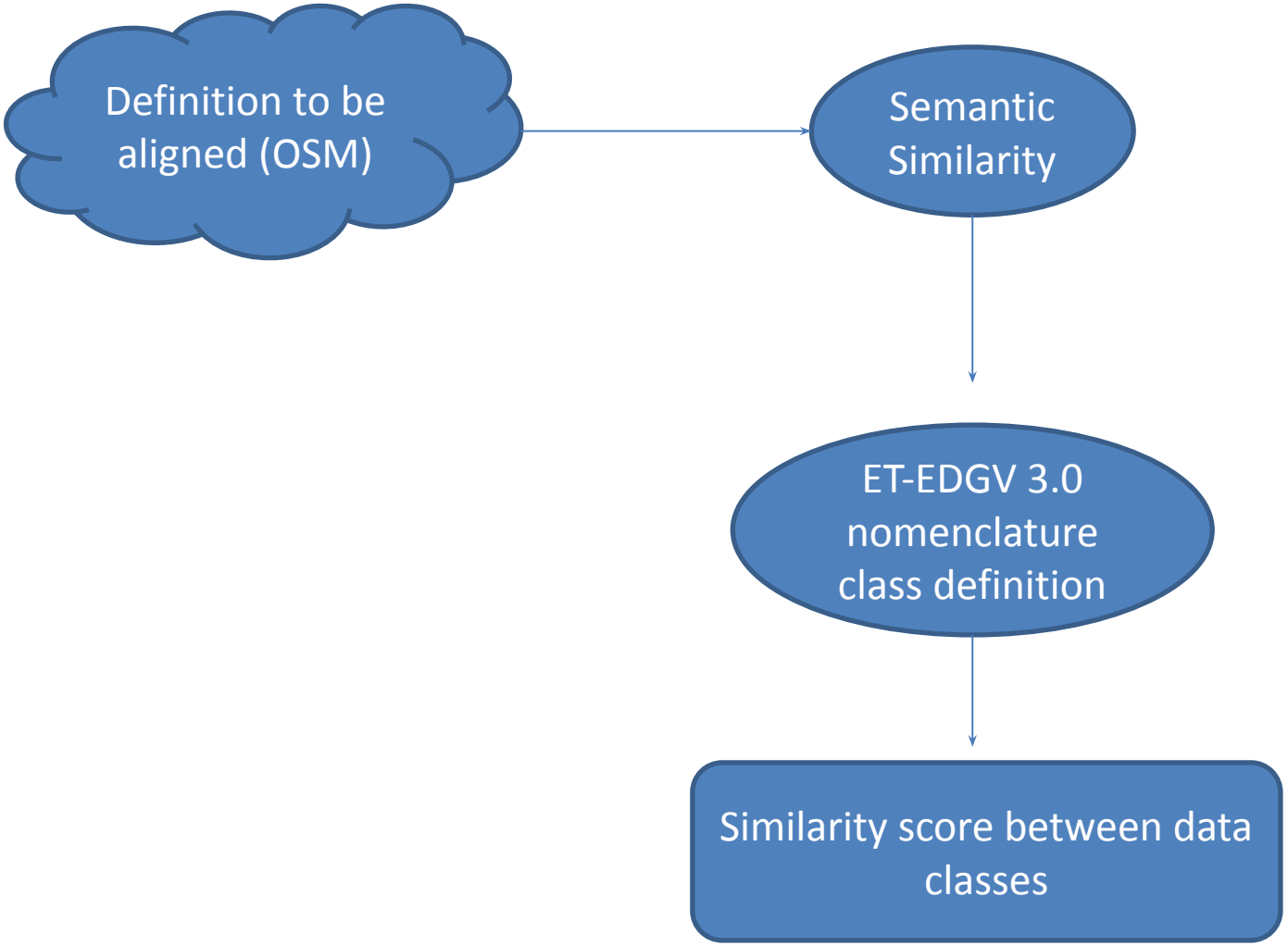


Figure 1 -Flowchart of metodological steps

Semantic Simillarity

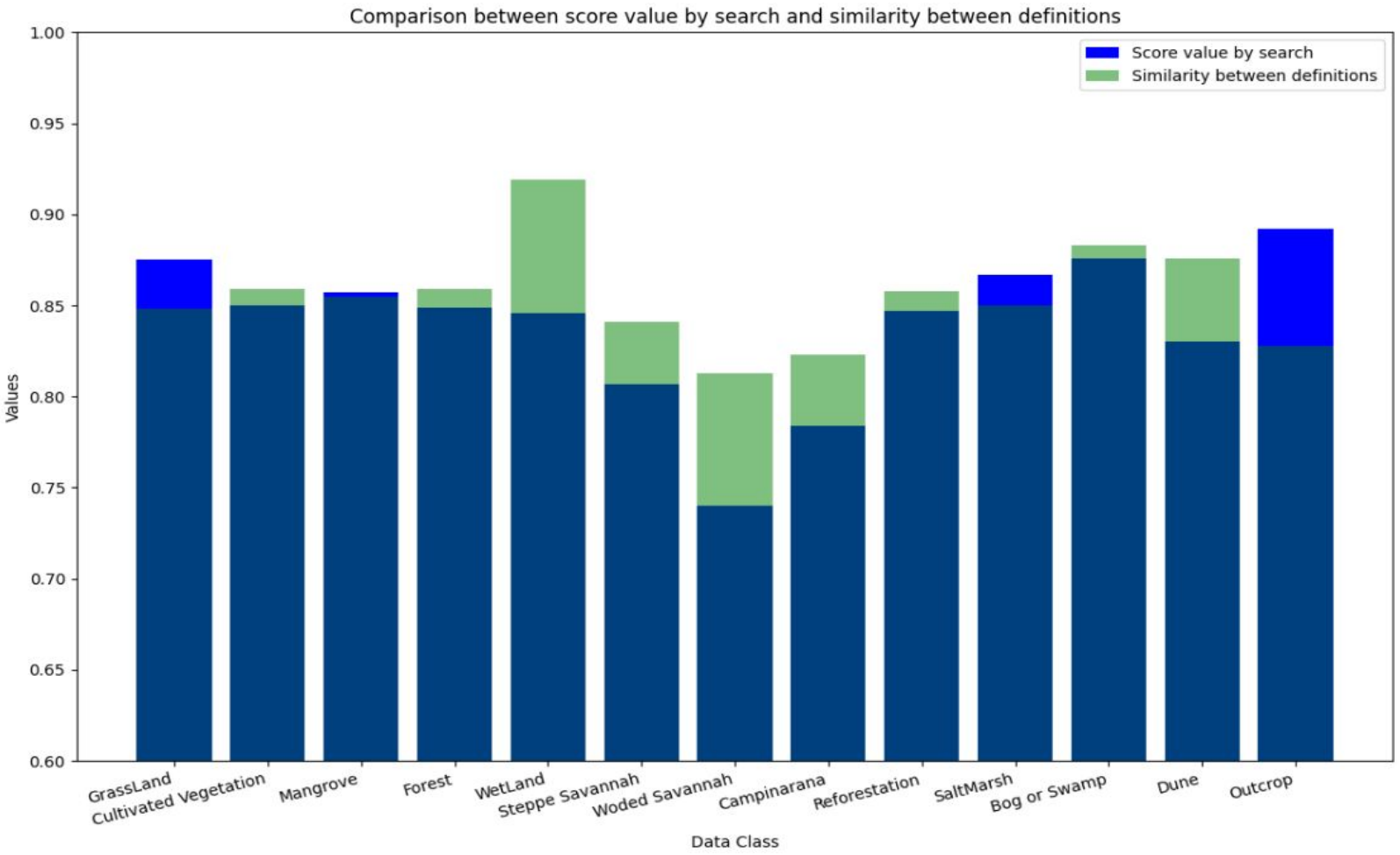


RESULTS AND DISCUTION

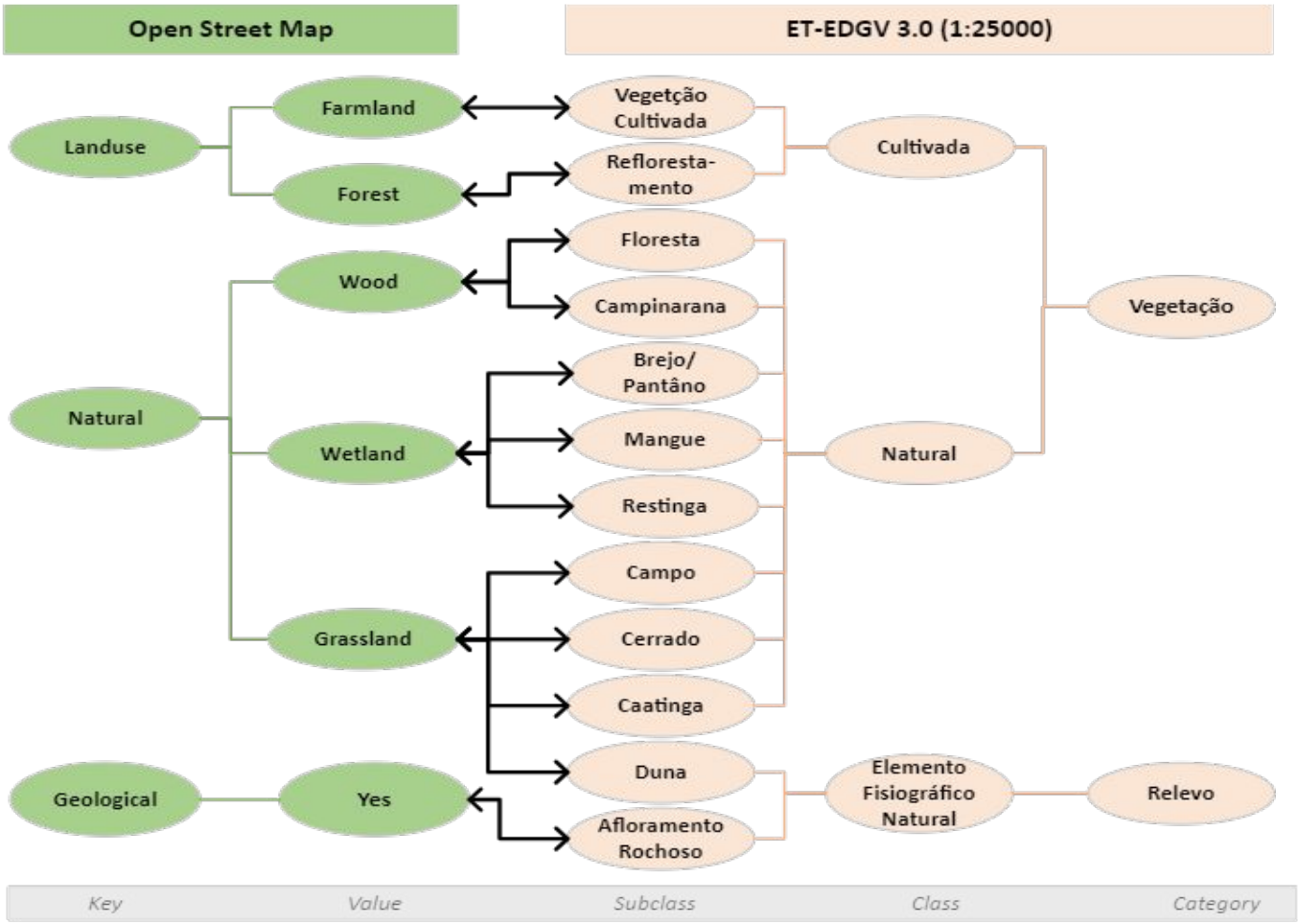
Score by Data Classes

Categorie Of -ET EDGV (Search Term)	OSM Tag With Highest Score	Score Value By Search	Similarity Between Definitions
GrassLand	natural=grassland	0.875	0.848
Cultivated Vegetation	landuse=farmland	0.850	0.859
Mangrove	wetland=mangrove	0.857	0.855
Forest	natural=wood	0.849	0.859
WetLand	natural=wetland	0.846	0.919
Steppe Savannah	natural=grassland=steppe	0.807	0.841
Woded Savannah	natural=grassland=savanna	0.740	0.813
Campinarana	natural=wood	0.784	0.823
Reforestation	landuse=forest	0.847	0.858
SaltMarsh	wetland=saltmarsh	0.867	0.850
Bog or Swamp	wetland=swamp	0.876	0.883
Dune	natural=dune	0.830	0.876
Outcrop	geological=outcrop	0.892	0.828

Comparison


Comparison between score value by search and similarity between definitions
Score value by search
Similarity between definitions
Values
1.00
0.95
0.90
0.85
0.80
0.75
0.70
0.65
0.60
GrassLand
Cultivated Vegetation
Mangrove
Forest
WetLand
Steppe Savannah
Woded Savannah
Campinarana
Reforestation
SaltMarsh
Bog or Swamp
Dune
Outcrop
Data Class

The Alignment



THANKS FOR YOUR ATTENTION!