



Stratified Data Integration

Fausto Giunchiglia, Alessio Zamboni,
Mayukh Bagchi and Simone Bocca.

KnowDive

DISI, University of Trento, Italy.

<http://knowdive.disi.unitn.it/>

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Outline

- Motivation
- Stratification of Diversity
- Representing Diversity
- Stratified Data Integration - *iTelos*
- Evaluation



Motivation

Representation = *Concepts + Language + Knowledge + Data*

Semantic Heterogeneity - the existence of variance in the representation of the same real-world phenomenon, rooted in *World Diversity*.

Impediment in *multilingual data integration* from *heterogeneous* sources

Stratification of Diversity

We take *Representation Diversity* to mean semantic heterogeneity, as organized in the *four layers*:

Conceptual Diversity (L1)

Language Diversity (L2)

Knowledge Diversity (L4)

Data Diversity (L5)

Car				
	schema:	schema:	schema:	schema:
Nameplate	speed	fuelCapacity	fuelType	modelDate
FP372MK	150	62	Petrol	2020-11-25

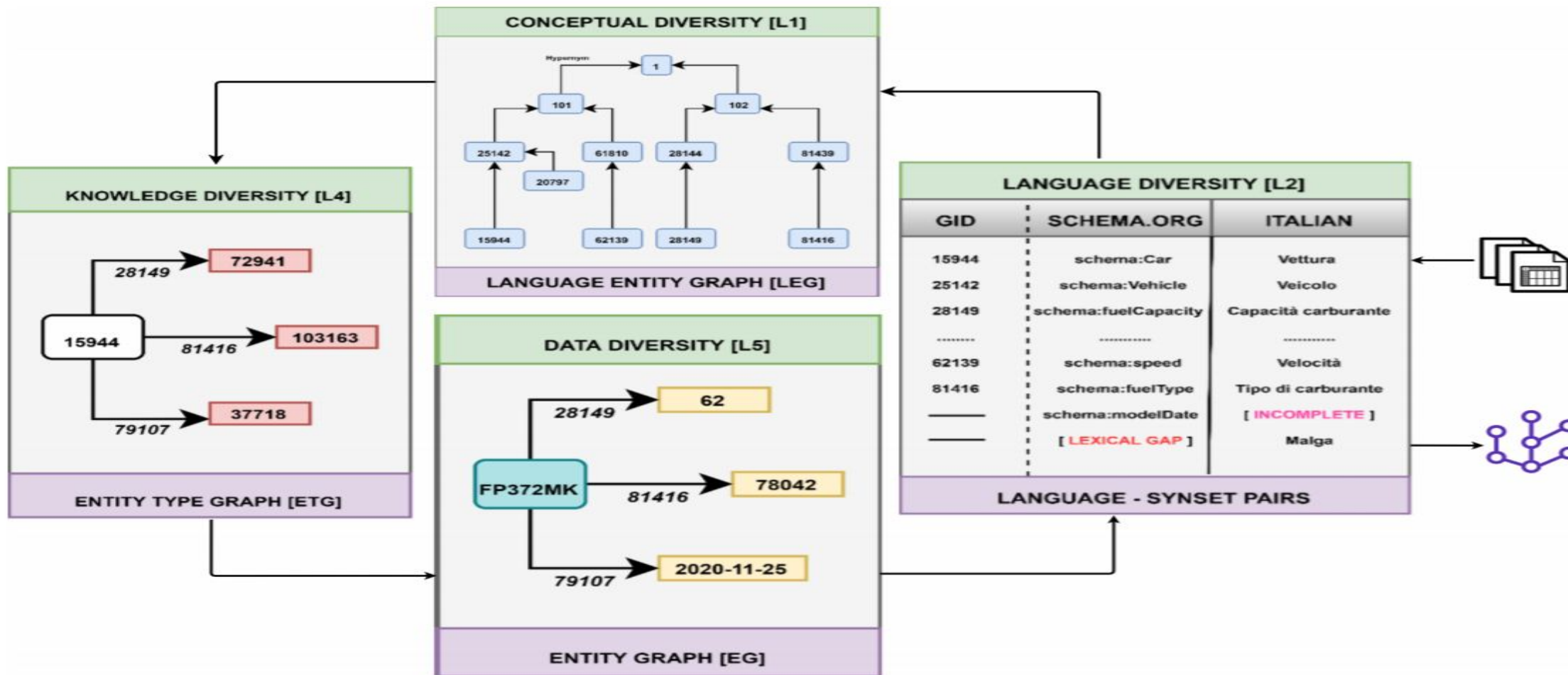
Vettura		
Targa	Velocità	Tipo di corpo
FP372MK	158	Coupé

Vehicle			
vso:VIN	vso:feature	vso:modelDate	vso:speed
FP372MK	Armrest	2020-11-25	155.0

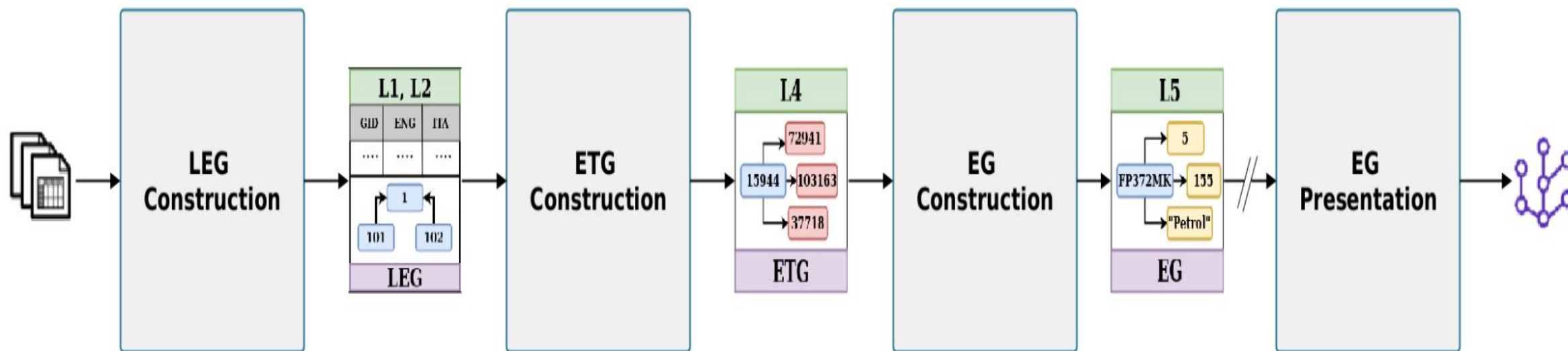
Stratification of Diversity: *Advantages*

- Each layer models a different type of phenomenon and the corresponding type of diversity.
- Diversity which appears in one layer is *independent* of how it appears in any other layer.
- Within each layer, it is possible to exploit methods and techniques specialized just for that layer.

The Representation Diversity Architecture



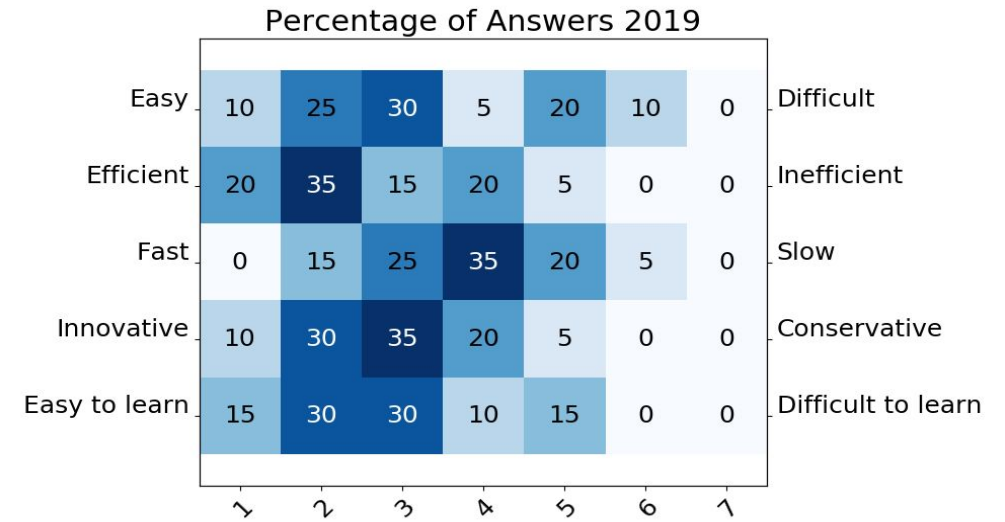
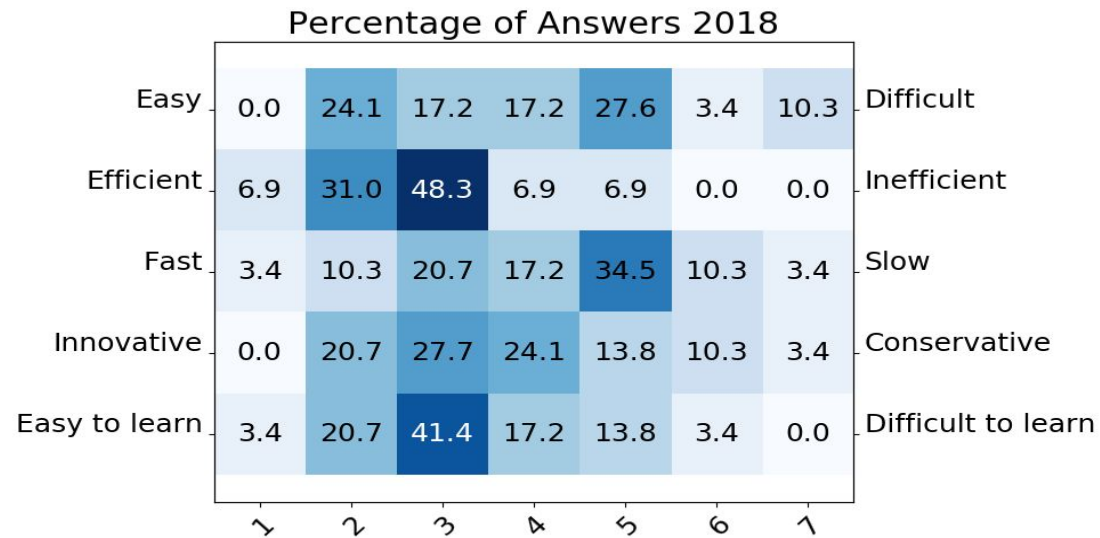
Stratified Data Integration: *iTelos*



Evaluation

Knowledge and Data Integration (KDI) [<https://unitn-kdi-2020.github.io/unitn-kdi-2020/>]

An International Master Degree Data Science Course by UniTn





Thank You !

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