

LDBC



Existing Languages Working Group (ELWG): Status Report

14th LDBC TUC Meeting
16 August 2021

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ELWG Convener

Background & Objectives

- ELWG convened in September 2018 as a response to the inception of design and standardization work on property graph querying.
- There are many existing graph query languages in use, but no central catalogue to record, compare, and contrast these languages. The group aims to address this shortfall:
 - The identification of graph querying features, drawn from existing implementations, the design process in WG3, and academia
 - The indication of the level of support for each language-feature pair. Where supported, exemplar syntax is indicated
 - → **Production of a comprehensive spreadsheet**
- Complementary work on the identification and categorization of use cases
- Input to GQL

Members - active and observing, past and present

- Renzo Angles, *Universidad de Talca (Chile), SPARQL formal semantics*
- Angela Bonifati, *University of Lyon (France), Head of the Database Group*
- Frank Celler, *ArangoDB Inc, US National Body (ISO/IEC SC32/WG3)*
- Alin Deutsch, *TigerGraph & University of San Diego, US National Body*
- Boris Iordanov, *HypergraphDB, Based in US*
- Victor Lee, *TigerGraph, US National Body (ISO/IEC SC32/WG3)*
- Roi Lipman, *RedisGraph, US National Body (ISO/IEC SC32/WG3)*
- Jeff Lovitz, *RedisGraph, US National Body (ISO/IEC SC32/WG3)*
- Petra Selmer, *Neo4j, US National Body (ISO/IEC SC32/WG3)*
- Harsh Thakkar, *OSTHUS GmbH, Gremlin author (SPARQL-to-Gremlin transpiler)*
- Oskar van Rest, *Oracle, US National Body (ISO/IEC SC32/WG3)*
- Mingxi Wu, *TigerGraph, US National Body (ISO/IEC SC32/WG3)*

Languages under consideration

- Cypher
- SQL PGQ [Framework:2020, Foundation:2020, SQL/PGQ IWD]
- PGQL
- GSQL
- G-CORE
- Gremlin
- SPARQL
- GRAQL
- GraphQL
- AQL (forthcoming)

Feature Areas

- The property graph model
- Basic operations (e.g. mathematical operations, string operations etc)
- Basic data types and type operations
- Query structure
- DML
- Basic querying
- *Composable graph queries - not complete*
- **Complex pattern matching**

Current and next steps

- Group in hiatus since June 2020 after the completion of the “complex pattern matching” features
 - Graph pattern matching is a strong focus of the work on SQL/PGQ (SQL Extensions for Property Graph Querying) and GQL, and work in this area is still ongoing
- Looking to reconvene once activity in WG3 has decreased
- Next steps:
 - Identify and complete more feature areas (especially pertinent to possible future versions of GQL)
 - Produce and publish a survey-style paper
 - Others - TBD