Existing Languages Working Group (ELWG): Status Report

14th LDBC TUC Meeting
16 August 2021

Petra Selmer, Neo4j
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
- Boris Iordanov, *HypergraphDB*, Based in US
- Harsh Thakkar, *OSTHUS GmbH*, Gremlinator author (SPARQL-to-Gremlin transpiler)
Languages under consideration

- Cypher
- 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