Named property graphs

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Introduction

We introduce Named Property Graph model that allows to group graphs into separate units and describe information about them. We also present Cypher$_n$ query language that supports our proposal, mapping algorithms and use cases.

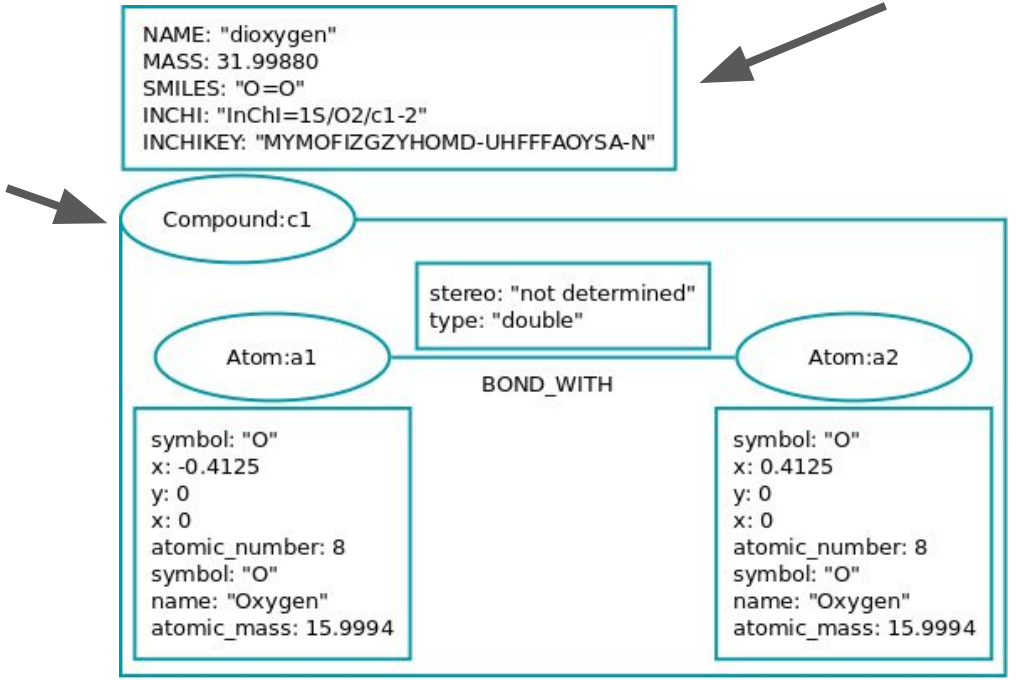
Named property graph usage

- access control
- data syndication
- information usage control
- aggregation or encapsulation of graph elements
- graph signing
- expressing propositional attitudes

Named property graph

- graph name
- properties for whole graph

- ability to name graph
- graph can have own properties

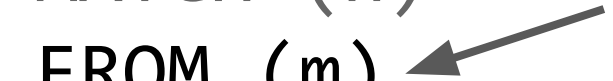


Cypher$_n$

- named property graph query language
- additional FROM clause

- added FROM clause which specify name of property graph

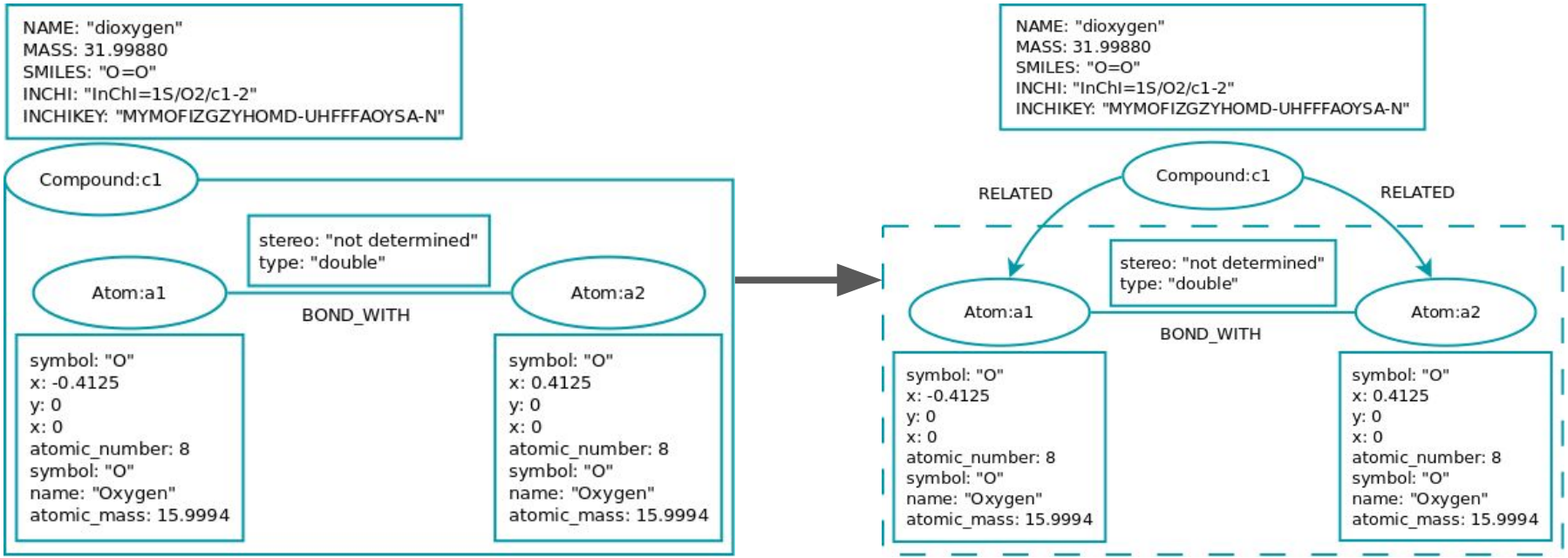
```
MATCH (n)
FROM (m)
RETURN n, m
```



Interoperability

- easy apply for existing databases
- mapping algorithms
  - named property graphs ➡ property graphs
  - Cypher_n ➡ openCypher

Mapping Named Property Graph into Property Graph



Mapping Cypher$_n$ into openCypher

```
MATCH (n) FROM (m)
    RETURN n, m
```

```
MATCH (n)<-[:RELATED]-(m)
    RETURN n, m
```

- Java open-source Command Line Interface (CLI) SDF parser
- parse chemical SDF files into 4 formats including openCypher
- ability to add additional atoms data from periodic table
- ability to change database IDs to full URLs

Available on GitHub

https://github.com/lszeremeta/SDFEater

Conclusions

- We present a Named Property Graph model which allows to group graphs into separate units and describe information about them.
- We also introduce Cypher$_n$ query language that supports our proposal.
- We also present mapping algorithms, use cases with the chemical data, and SDFEater that is our tool for processing data.
- Our proposal can be easily applied to existing databases.

Thank you!

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