Request for feedback:
How to make generative AI in the enterprise work with knowledge graphs
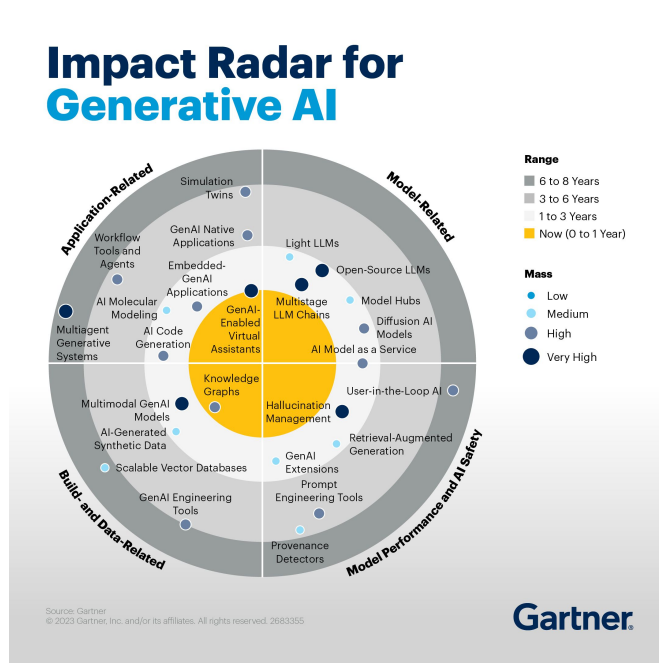
RDF?

Labelled Property Graphs (LPG)?

Both?

Felix Sasaki SAP SE
Data Week Leipzig 2024

Slides at https://tinyurl.com/dataweek24-sasaki

THE BEST RUN SAP

Towards the golden age of knowledge graphs, thanks to generative AI

Innovation

Gartner (2023).
Impact Radar for generative AI

Opportunities

Denny Vrandečić (2023)
The Future of Knowledge Graphs in a World
of Large Language Models

Research
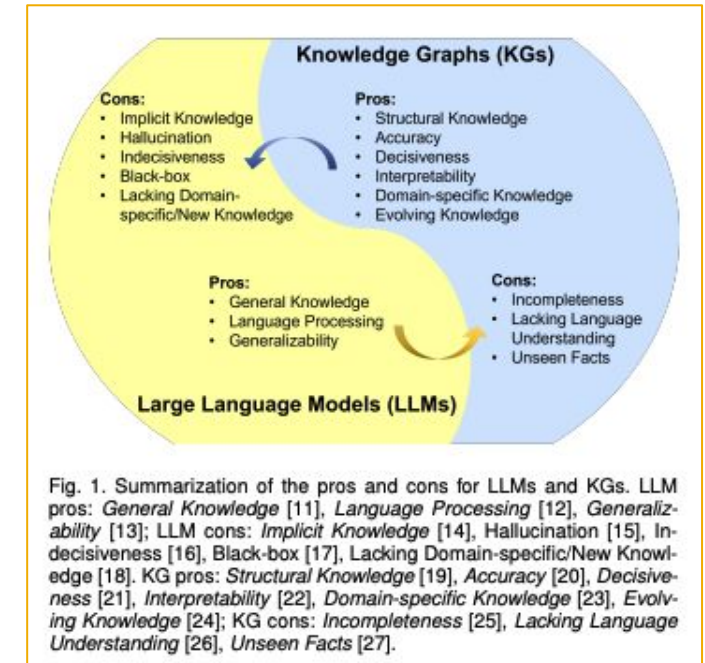
Shirui Pan et al. Unifying Large Language
Models and Knowledge Graphs: A Roadmap
(2023)

Knowledge graphs in generative AI: which way will they go?

Scene from the movie Cast Away

Industry & generative AI community focus on LPG

Graphs

📄 Amazon Neptune with Cypher **L**	📄 Amazon Neptune with SPARQL **R**
Amazon Neptune is a	Amazon Neptune is a
📄 ArangoDB **O**	📄 Azure Cosmos DB for Apache Gremlin **L**
Open In Colab	[Azure Cosmos DB for Apache
📄 Diffbot **L**	📄 FalkorDB **L**
Open In Colab	FalkorDB is a low-latency Graph Database
📄 HugeGraph **L**	📄 Kuzu **L**
HugeGraph is a convenient, efficient,	Kùzu is an in-process property graph database
📄 Memgraph **L**	📄 NebulaGraph **L**
Memgraph is the open-source	NebulaGraph is an open-source,
📄 Neo4j **L**	📄 NetworkX **O**
Neo4j is a graph database	NetworkX is a Python package for the
📄 Ontotext GraphDB **R**	📄 RDFLib **R**
Ontotext GraphDB is a graph database	RDFLib is a pure Python package for

LangChain graph support overview. Based on libraries for
LPG (**L**), RDF (**R**), other (**O**)

DeepLearning.AI ✔
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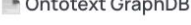In Knowledge Graphs for RAG, our latest short course, you'll explore how knowledge graphs work, how to build with them, and create better retrieval augmented generation applications.

Start today for free: hubs.la/Q02pwZjQ0

neo4j   **DeepLearning.AI**

NEW SHORT COURSE

Better RAG with Knowledge Graphs

Learn to use and build knowledge graph systems to improve RAG applications

Enroll Now

2:15 PM · Mar 15, 2024 · **13.6K** Views

💬 1   ⟲ 27   ♥ 149   🔖 54

Deeplearning.ai tutorial on
Knowledge Graphs for retrieval augmented generation (RAG)
LPG focused; RDF not even mentioned

Industry & generative AI community focus on LPG

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Knowledge Graphs
Learn to use and build
knowledge graph systems to

2:15 PM · Mar 15, 2024 · **13.6K** Views

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Knowledge Graphs for retrieval augmented generation (RAG)
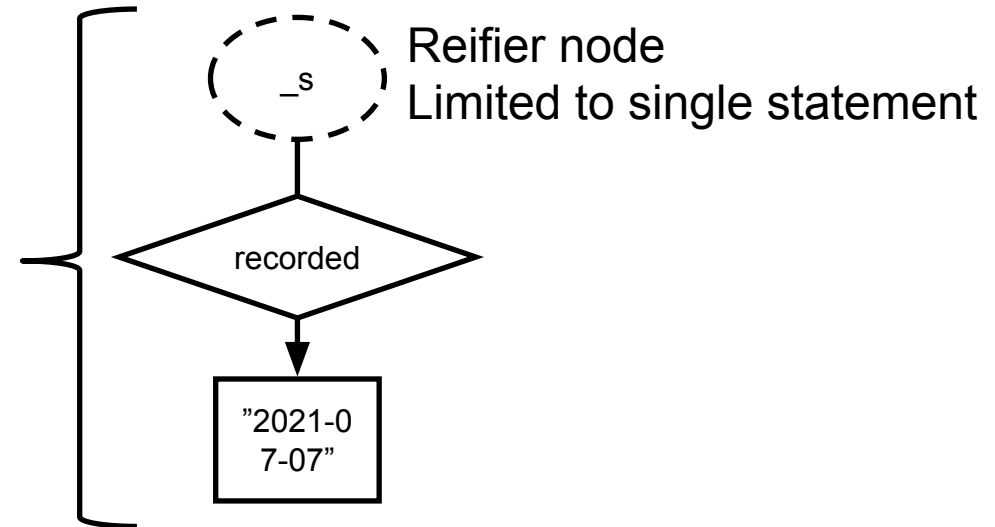LPG focused; RDF not even mentioned

The future relevance of RDF is at stake

Statement April 9th 2024 from Bryan Thompson on the public W3C RDF Star Working Group Mailling List

Your voice counts!

Basic RDF star approach to enable statements about statements

RDF statement
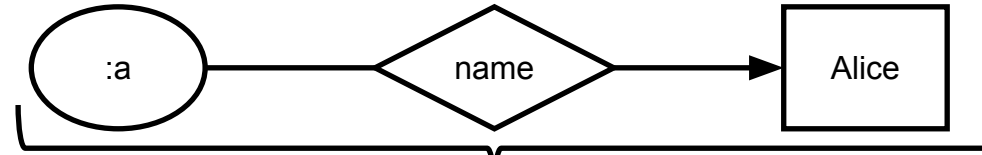
Using quoted tripes for further statements

Reifier node
Limited to single statement

Syntax turtle star quoted triples

<< :a :name "Alice" >> :recorded "2021-07-07".
:a :name "Alice".

Syntax turtle start annotated triples

:a :name "Alice" {| :recorded "2021-07-07" |} .
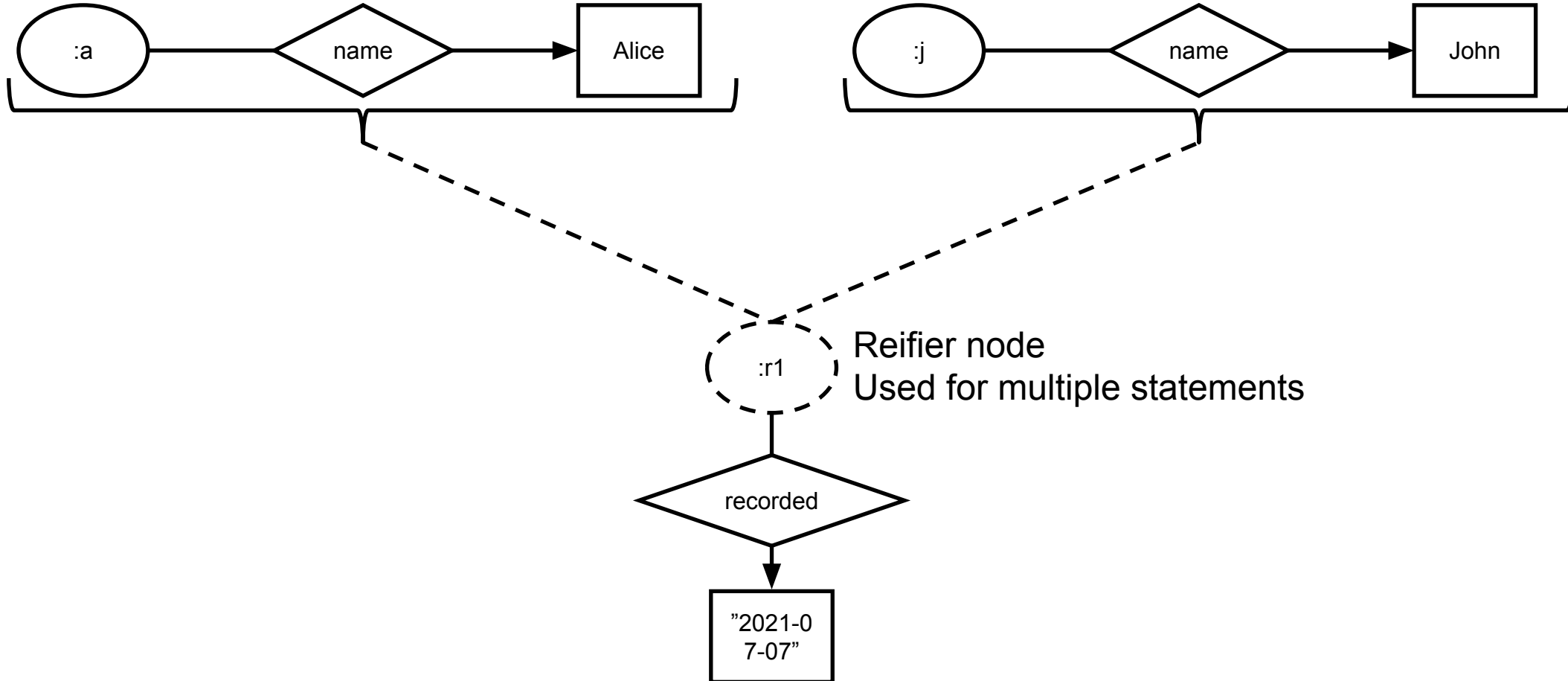
Approach is compatible* with LPG edge properties

(:a) - [name {recorded: 2021-07-07}] → (Alice)

Proposal under discussion: make reifiers re-usable across statements

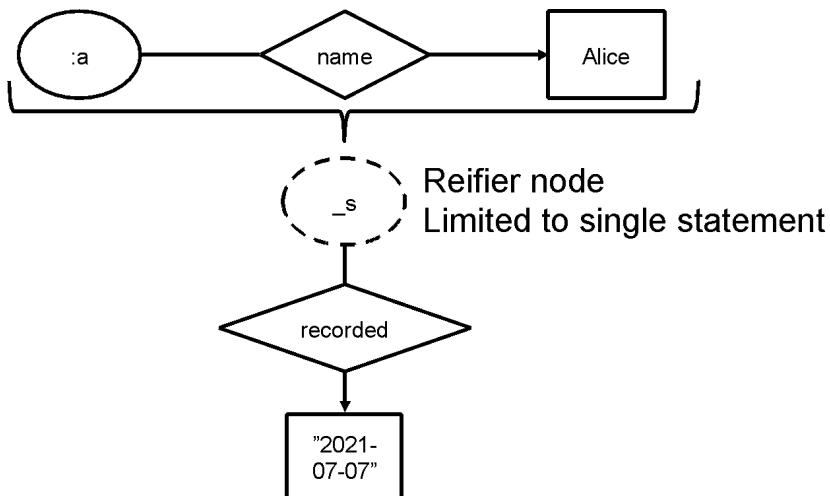RDF statement (from previous slide)

Different RDF statement

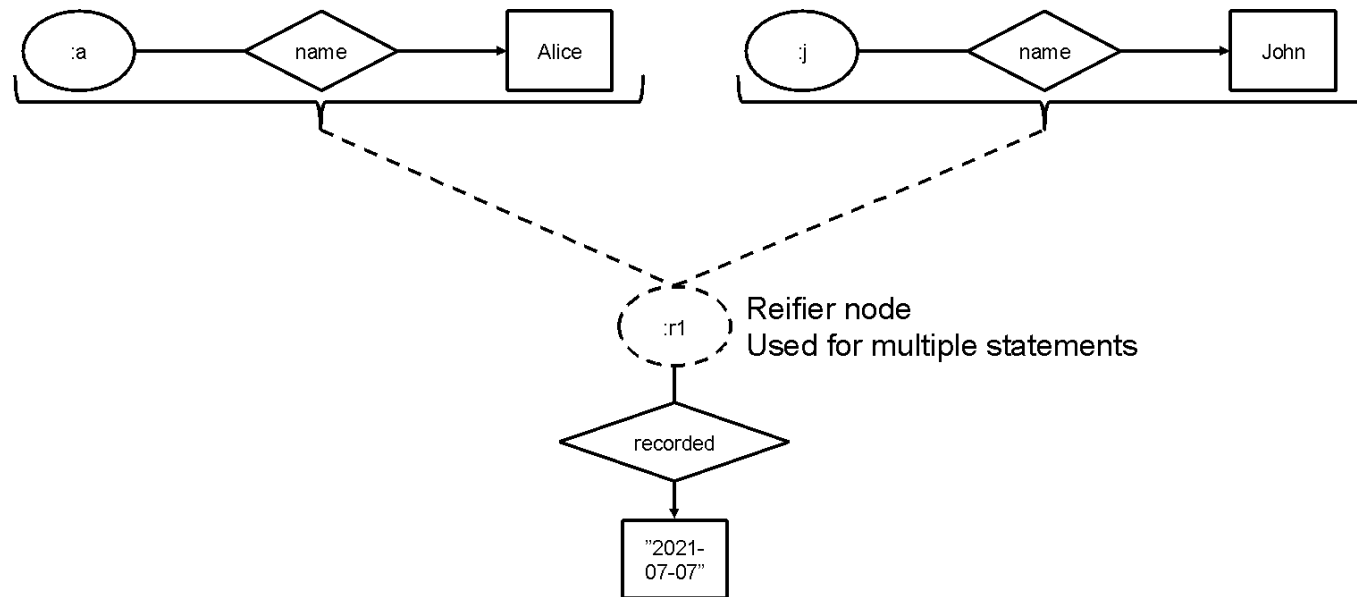Reifier node
Used for multiple statements

- Less triples overall
- Semantic explicitness (the same reifier = the same annotations)
- **Compatibility of approach with LPG edge properties is being questioned by parts of the W3C WG**

Where should RDF go?

Compatible* with LPG
edge properties

Compatibility with LPG
questioned by parts of the
W3C WG

Your voice counts!

State your opinion here or respond to a related post on LinkedIn: https://tinyurl.com/rdf-star-direction

* For literal values, not for URIs (=nodes) as objects in quoted triples