



# Going Meta

S2 - Episode 11

2 Years of KGs and GenAI. A Recap

# Main themes

Foundations:

Symbolic + Subsymbolic AI  
Basic RAG, RAG with KGs

Retrieval Patterns

LLMs as assistants for domain Modeling

KG construction with ontos... and dynamic ontology selection

Oneoffs: Data.world benchmark

# Foundations

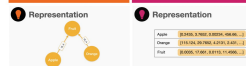
## Explicit and Implicit Semantics S1-Ep21

## Basic RAG and RAG with Knowledge Graphs S1-Ep22

Going Meta #21:  
Vector-based Semantic Search and  
Graph-based Semantic Search 🤖

### DATA SEMANTICS

EXPLICIT (SYMBOLIC)      IMPLICIT (SUB-SYMBOLIC)



Going Meta #22:  
RAG with Knowledge Graphs

### How do KG improve RAG?

Enabling context augmentation



# Retrieval Patterns

RAG with Vectors and traversals  
S1-Ep23

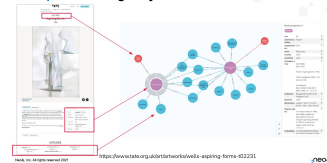
Adding ontologies to the mix  
S1-Ep24

Comparing Retrieval Methods  
S2-Ep6

Function calling (tools)  
S2-Ep7

Going Meta #23: Advanced RAG  
patterns with Knowledge Graphs

Example 2: An art gallery assistant



Going Meta #24:  
KG+LLMs: Ontology driven RAG  
patterns

Injecting graph post-processing (powerful 🦄 but rigid 🐼)

```
contextualize_query = """
..cypher magic..
"""

contextualized_vectorscore = Neo4jVector.from_existing_index(
    OpenAIEmbedder(),
    uri=uri,
    username=username,
    password=password,
    index_name="legislation",
    retrieval_query=contextualize_query,
)
```

neo4j

Going Meta  
S2 - Episode 6  
Retrieval Methods Compared

neo4j

Going Meta  
S2 - Episode 7  
Enhancing LLM Tool Calling with Ontologies

What is tool calling?



# LLMs as assistants for domain Modeling (from structured data)

Learn a Graph Model from a  
denormalised dataset  
S1-Ep25

Call a critic, get feedback and iterate!  
S1-Ep27

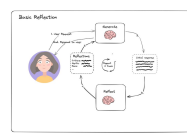
**Going Meta #25**  
LLMs for automated KG  
construction  
(GM#5 revisited)

The automated KG construction process



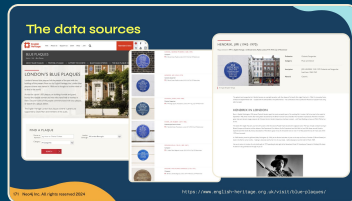
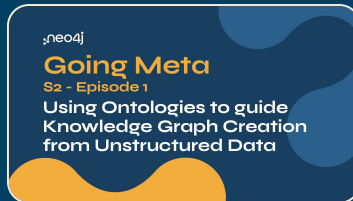
**Going Meta #27**  
Building a Reflection Agent  
with LangGraph

Basic Reflection

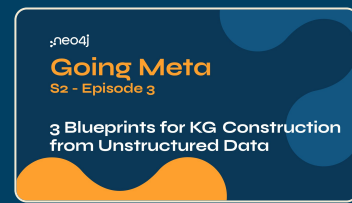


# KG construction

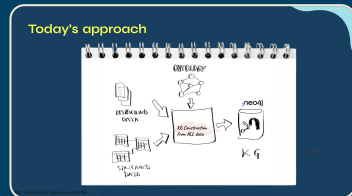
From unstructured data (no code)  
S2-Ep1



From unstructured data  
(programmatic)  
S2-Ep2 & S2-Ep3



From structured data (no code)  
S2-Ep5



From structured data (programmatic)  
S1-Ep5 & S1-Ep27

