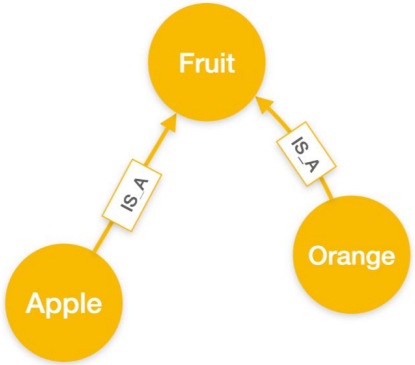
Going Meta #21:
The difference between Semantic Search and Semantic Search 🤨

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

A bit of context: symbolic/subsymbolic AI

Natural Language Description:**“Apples and oranges are both fruits”**

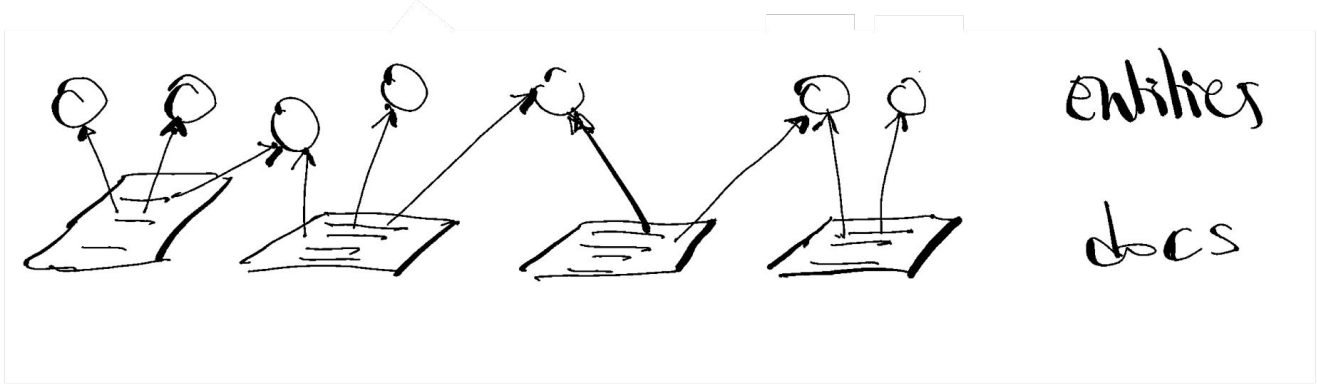


Symbolic representation

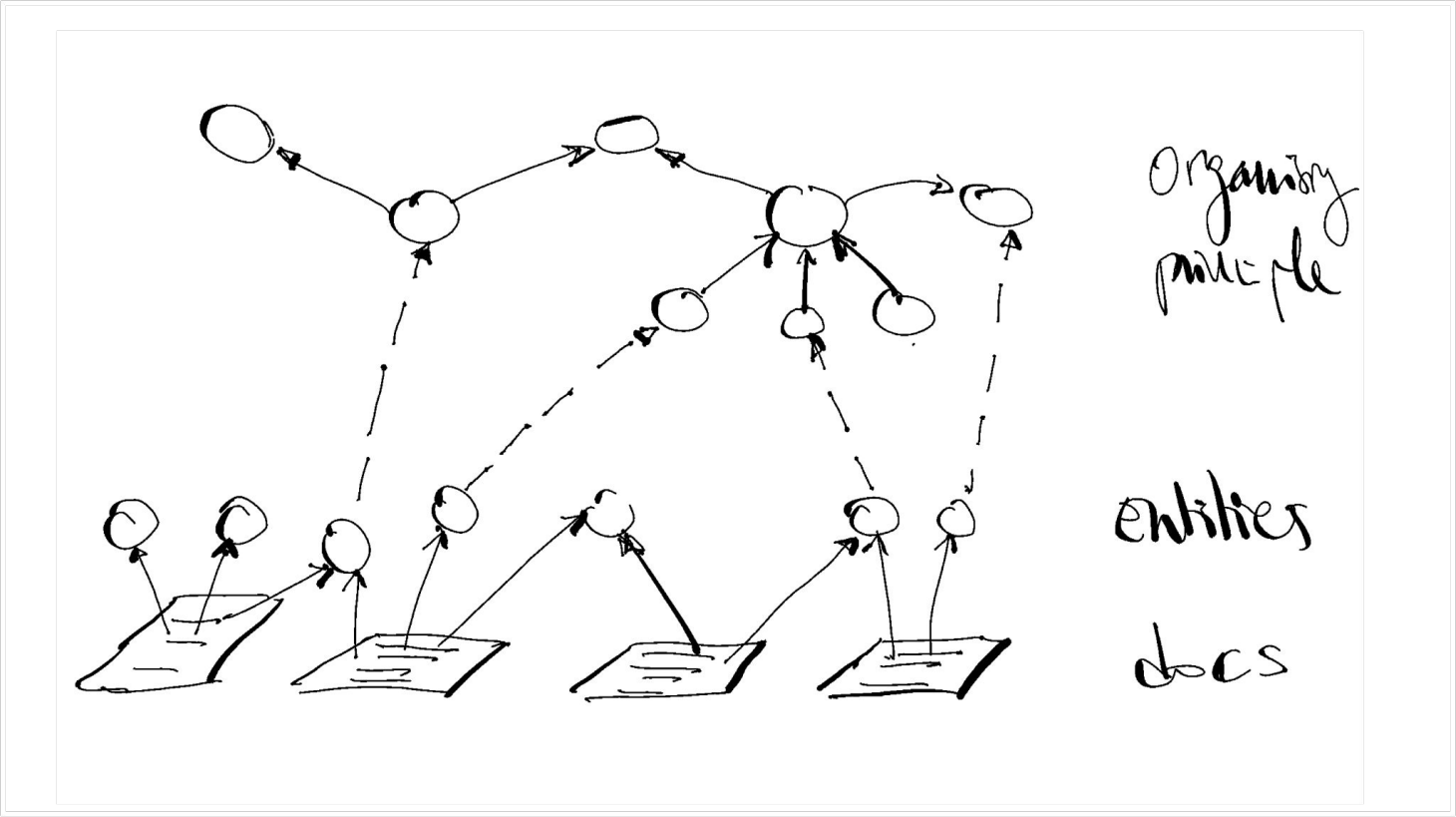
Apple	[0.2435, 3.7652, 0.00234, 456.66, …]
Orange	[115.124, 29.7652, 4.2131, 2.43, …]
Fruit	[0.0035, 17.661, 0.00113, 11.4566, …]

Subsymbolic (numeric) representation

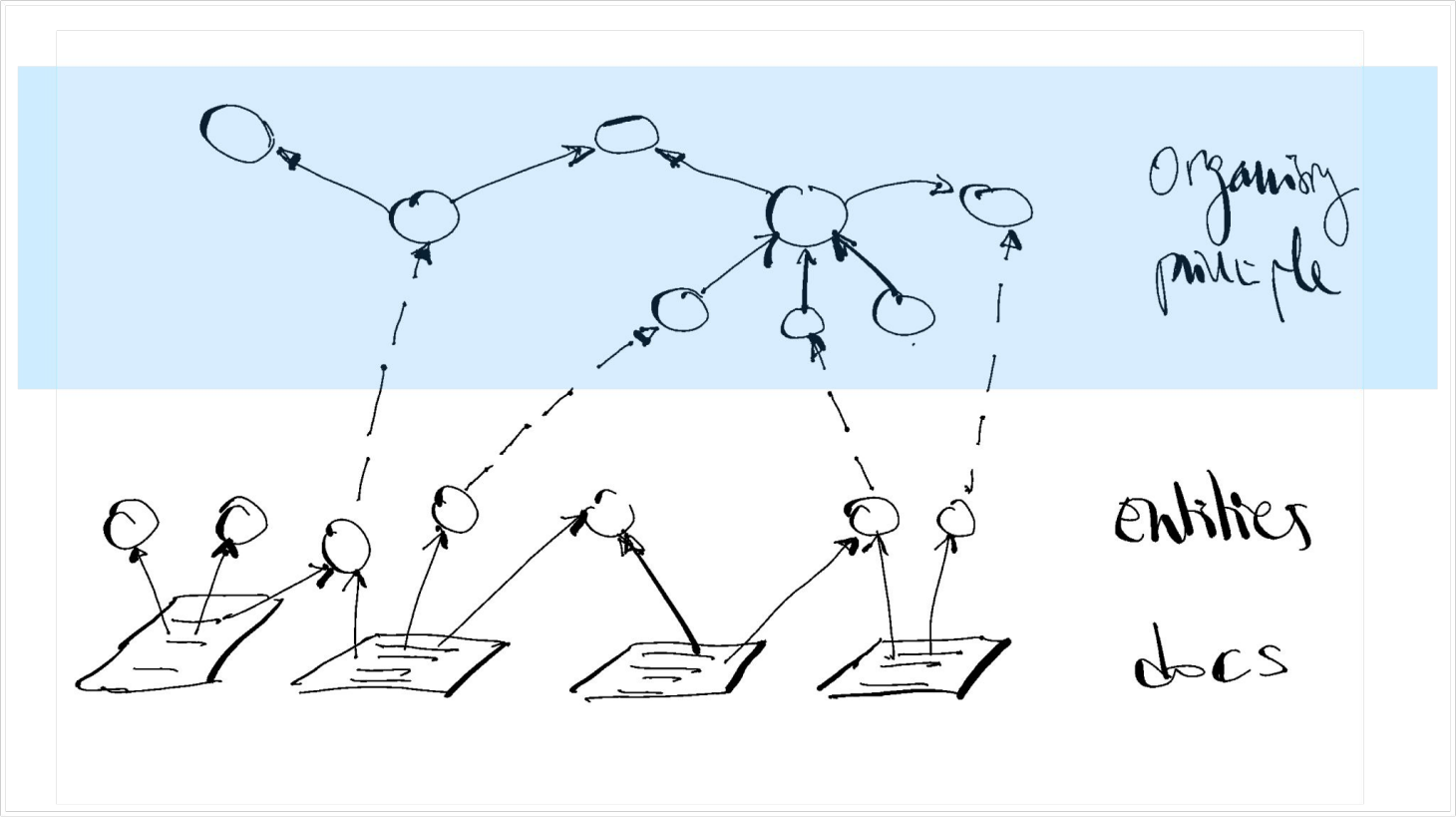
Semantic Search / (Graph-based) Semantic Similarity



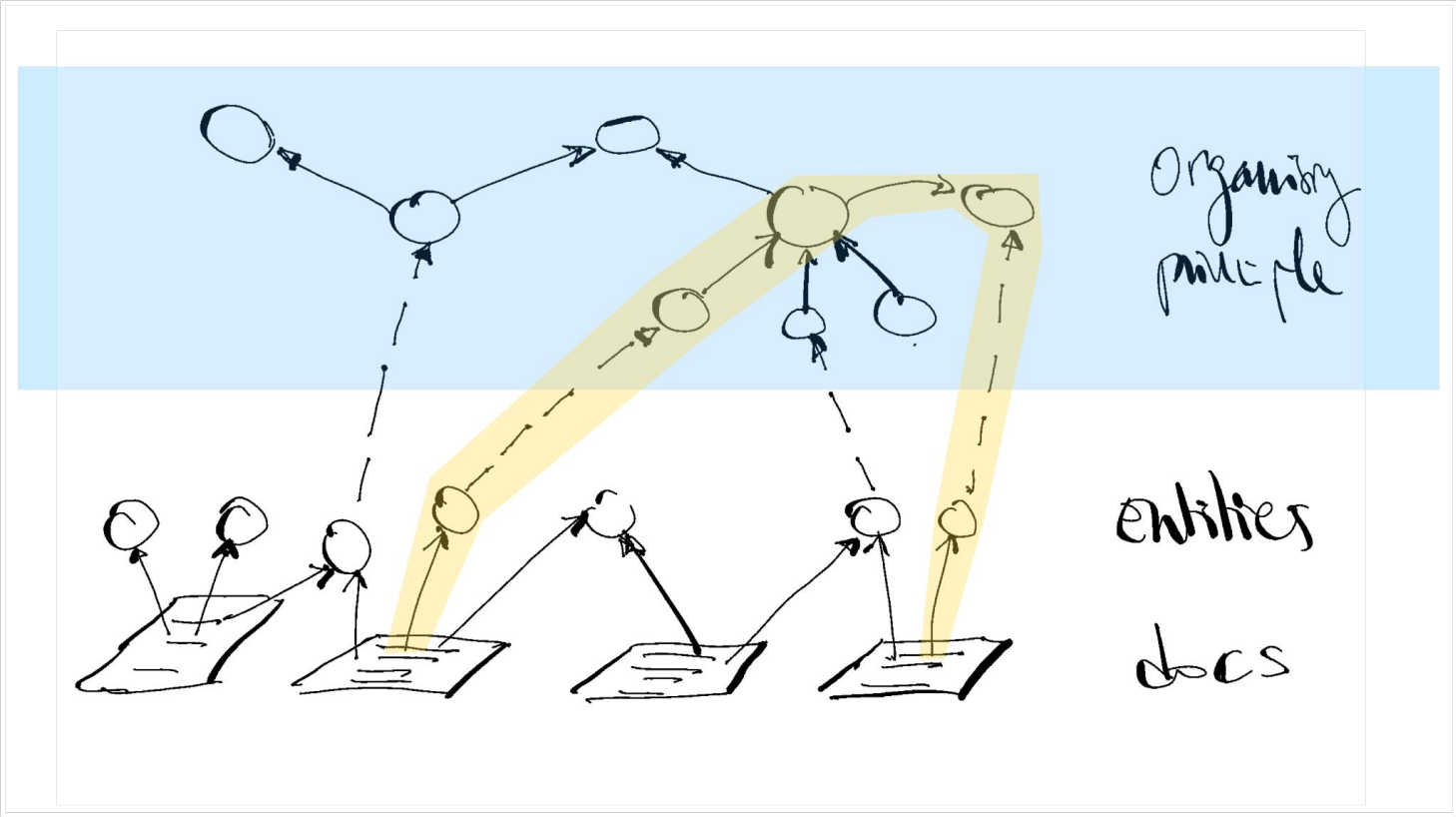
Semantic Search / (Graph-based) Semantic Similarity



Semantic Search / (Graph-based) Semantic Similarity



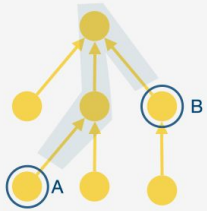
Semantic Search / (Graph-based) Semantic Similarity



Standard semantic similarity metrics

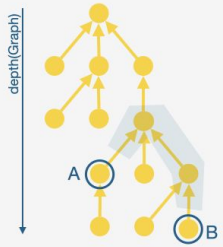
Path Similarity

$$sim(a, b) = \frac{1}{1 + dist(a, b)}$$



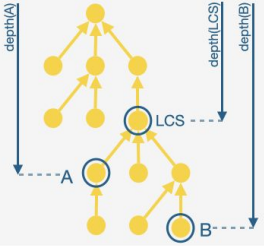
Leacock-Chodorow

$$sim(a, b) = -\log \frac{dist(a, b)}{2 \times Depth(T)}$$



Wu-Palmer

$$sim(a, b) = \frac{2 \times depth(LCS(a, b))}{depth(a) + depth(b)}$$



Semantic Search / (Vector-based) Semantic Similarity

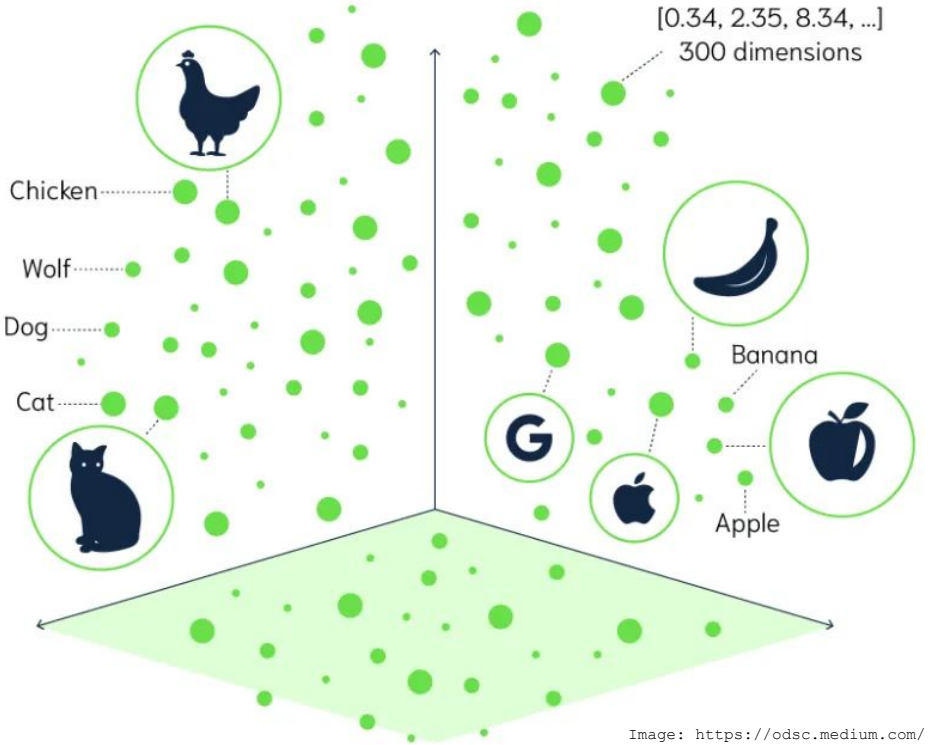
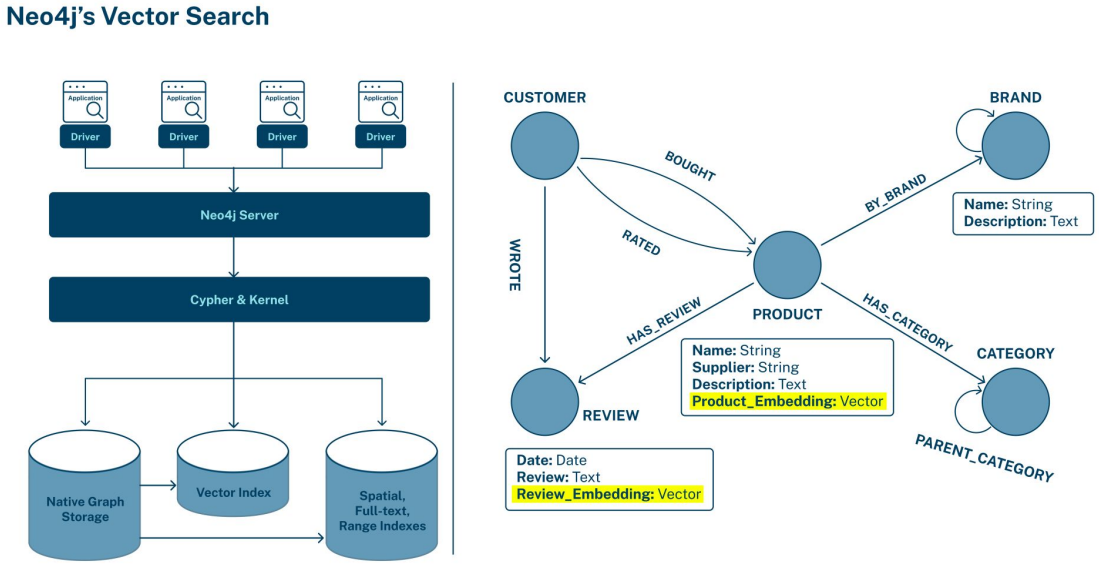


Image: https://odsc.medium.com/

Vector index in Neo4j



📢 https://neo4j.com/blog/vector-search-deeper-insights/

📚https://neo4j.com/docs/cypher-manual/current/indexes-for-vector-search/

Let’s do it!