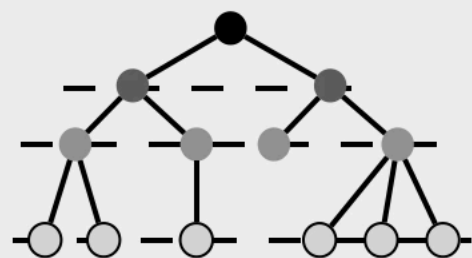
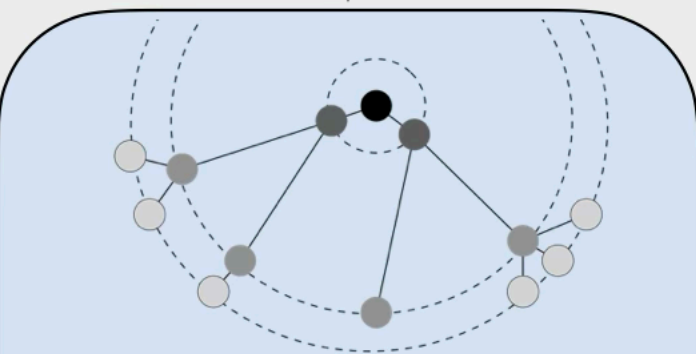


OFFLINE



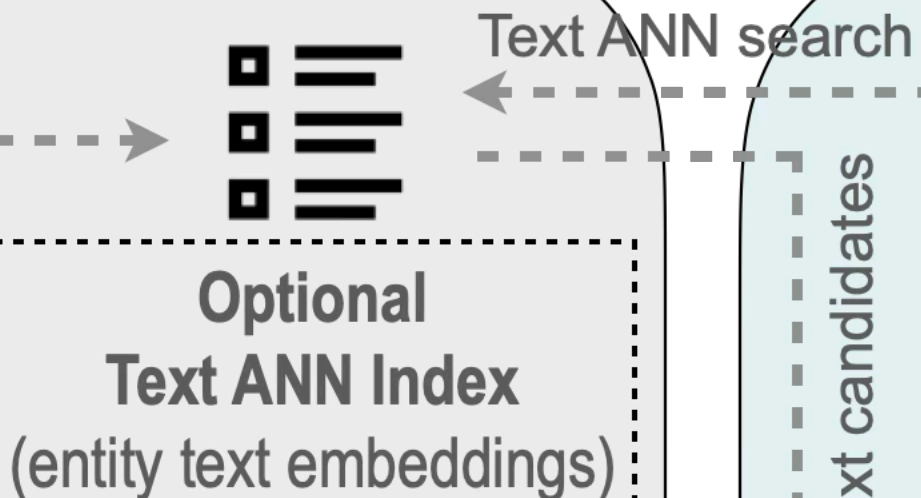
Ontology Ingestion



Hyperbolic Entity Embedding Learning
(radius-controlled)



Origin Log-map
(tangent vectors)



Optional Text ANN Index
(entity text embeddings)



Euclidean ANN Index
(tangent-space)

Text ANN search

Text candidates

merge tangent + (optional) text candidates

Euclidean score

ONLINE (Per query)

Query

Euclidean Embedding

Lightweight Adapter

Tangent-space ANN Candidate Generation

Candidate Pooling

Query-adaptive Gate
(controls soft mixing)

Exact Hyperbolic Reranking + Soft Mixing

Top-k Entities

(Optional) Downstream: LLM/App