* **Taxonomy**: A hierarchical classification system that organizes terms into structured categories and defines relationships among them.
* **Ontology**: A formal representation of complex relationships between entities in a domain, including hierarchical dependencies (e.g., employee reporting to a manager).
* **Knowledge Graph**: A practical implementation of ontologies that explicitly defines entity relationships.
  + *Example*: *Michael is an employee*, *Michael reports to Jim*, thus *Jim is Michael’s manager*.

**2.2.2 Embedding-Based (Neural / Vector-Based) Approach**

This approach leverages **Multilingual Natural Language Processing (NLP) models**, such as **Multilingual BERT, XLM-R, LaBSE**, and others, to encode both Thai and English sentences into a **shared vector space** (latent space). When a user inputs a query in Thai, the system converts the query into a vector and matches it against document vectors, regardless of their language. If two phrases have similar meanings, their vector representations will be close to each other in the latent space.

By employing **vector-based semantic matching**, this approach enables CLIR systems to retrieve relevant documents based on contextual meaning rather than relying solely on exact term matching.