Aasman: What are KGs?

- “Good luck trying to find a definition on the web that is not ideology or vendor based or very application specific.”

- Proposed architecture
  - Collection (which includes ontology)
  - Cleaning
  - Storage
  - Applications

- Actual architecture is much more complex
  - Reasoning is done with a programming language such as Prolog
  - Many tools are used such as ML, NLP, etc.
Aasman: What are KGs?

• A KG is “a system that tries to know and learn everything it can about an entity of interest to improve [internal processes, customer experience, health]”

• It always includes:
  • A (semantic) graph, ontologies, taxonomies
  • Identity management and a smart integration of silos of information

• It nearly always includes
  • Machine Learning
  • Natural Language Processing
  • Text classification

• It commonly includes
  • [taxonomy driven] Speech recognition
Aasman: Observations

- Graph Databases now accepted as the best technology to store complex semantic data.
- Semantics: people no long scared of taxonomies, ontologies still a little bit scary
- Entity Extraction and NLP almost a commodity now with SPACY, BERT, IBM Natural Language Understanding, etc, etc..
- Machine Learning and advanced analytics now available in the cloud.
Issues and Comments

- Representation languages [[ToddSchneider]]
  - FOL or OWL? [[JanetteWong]]
  - Answer seems to be RDF and OWL2
- Foundational ontologies [[ToddSchneider]]
  - The answer seems to be that they are not used.
- What ontologies are used? [[GaryBergCross]]
- Persistent identifiers [[ZacharyTrautt]]
- Pragmatic and engineering issues and compromises [[MarkUnderwood]]
Issues and Comments

- What reasoners are used [[ToddSchneider]] [[JanetteWong]]
  - Franz uses Prolog for reasoning
- The role of ontologies in the KG system: created separately or extracted as part of collection process [[VictorAgroskin]]
- How is ML used in the KG system? [[MarkUnderwood]]
- Dependencies on frequently updated sources (such as Wikipedia) [[MarkUnderwood]]
- Taxonomy is called reference or metadata management [[MarkUnderwood]]
- Why rebranding? [[PaulTyson]]
Sowa: Past, Present, Future of KGs

- Cognitive Memory(TM) is a key component of Kyndi technology
- Analogies can support informal, case-based reasoning
- Formal reasoning: induction, deduction and abduction
- Explanations are important
Issues and Comments

• KG are subset of semantic network [[RaviSharma]]

• What about un-natural language? [[DavidEddy]]

• Ontology standards [[MikeBennett]]

• Evolution of standards (such as dictionaries, but also ontologies) [[JanetSinger]] [[MikeBennett]] [[DavidEddy]]