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Creating Real-Time Dynamic Knowledge Graphs

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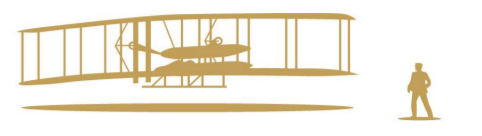
Creating Real-Time Dynamic Knowledge Graphs

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WRIGHT STATE UNIVERSITY



KNOESIS.ORG

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MOTIVATION

- ❖ Real world events are dynamic in nature
 - Recurring events e.g. US Presidential Election
 - Non-recurring events e.g. Hurricane Irma
- ❖ Need for real-time predictive analysis, trend analysis, public opinion analysis for events.
- ❖ Current state-of-the-art curates evolving knowledge graph from structured text but not from incoming real-time user generated unstructured text.

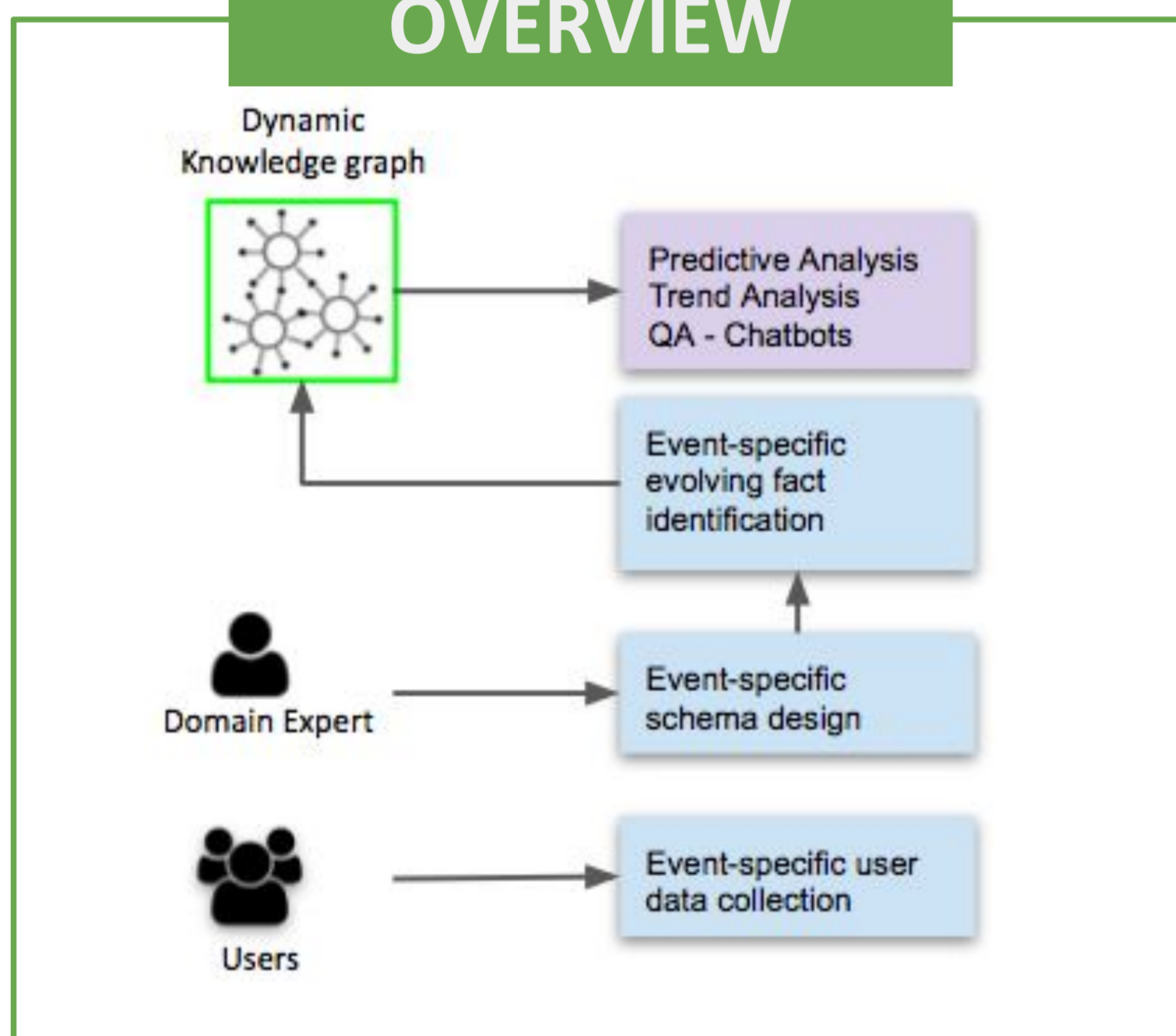
CONTRIBUTIONS

- ❖ We address the changing nature of relationships between real-world entities during evolving events.
- ❖ We propose to create an evolving event-specific Dynamic Knowledge Graph (DKG) which is complementary to the static information in traditional knowledge graphs such as DBpedia, Freebase and YAGO.

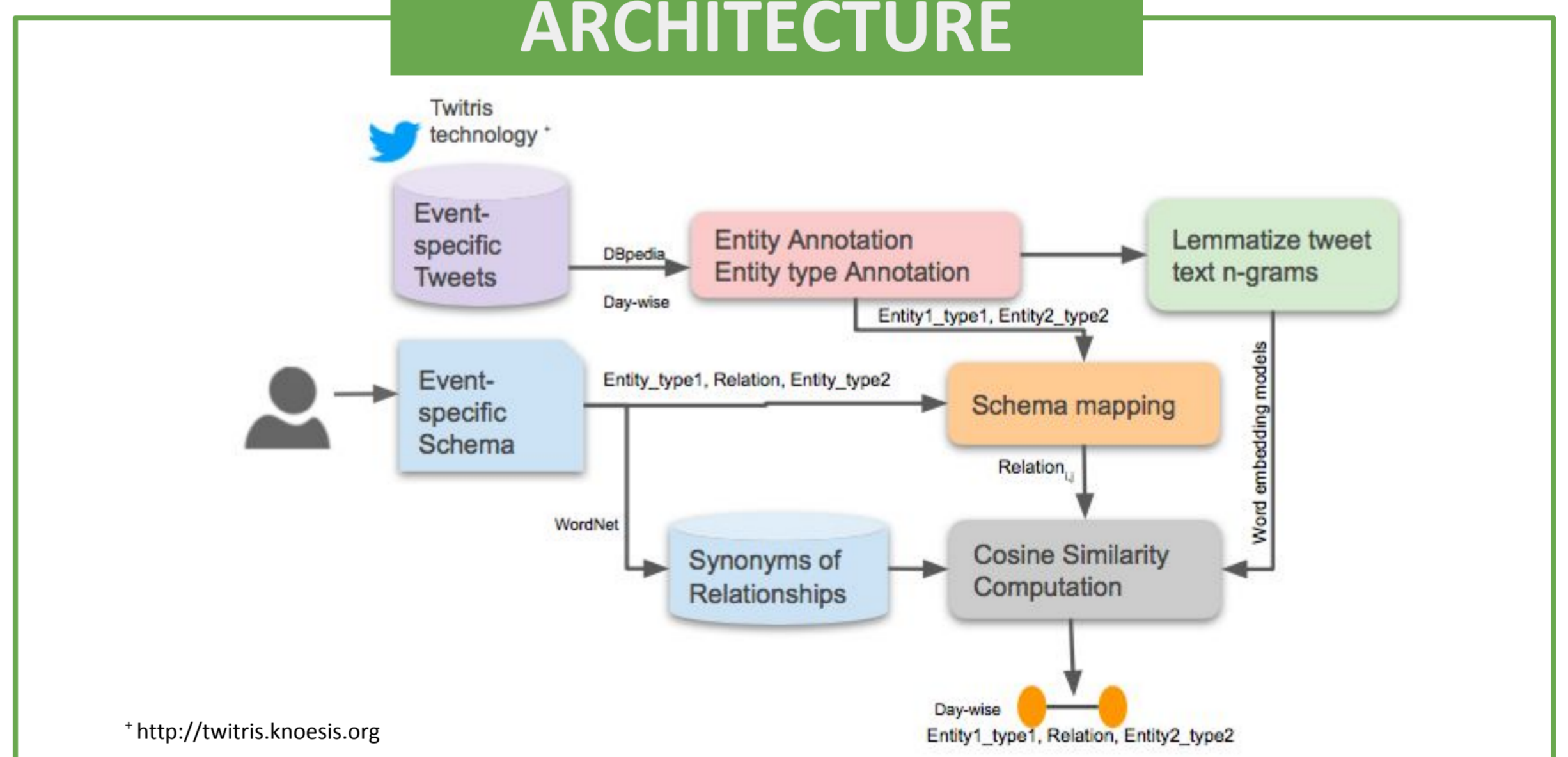
APPLICATIONS

- ❖ Question-answering systems: Query responses for temporally changing answers.
- ❖ Healthcare: Building disease-specific personalized DKG for patients for health-monitoring.
- ❖ Disaster response: Building a machine-understandable semi-structured knowledge repository that represents evolving situational awareness of events during a disaster response.
- ❖ Chatbots: DKG can provide a structured platform for the more accurate chatbot responses.

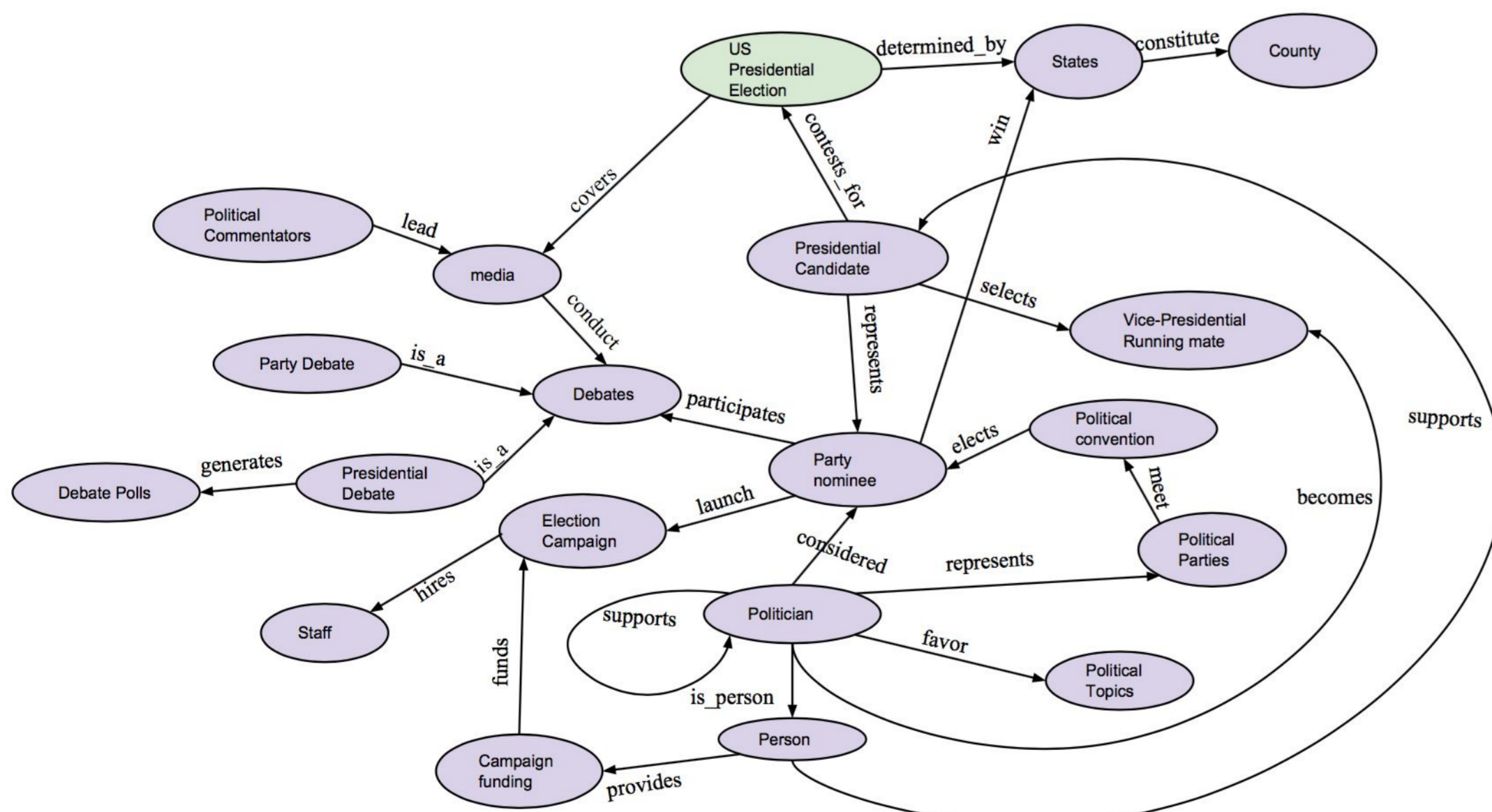
OVERVIEW



ARCHITECTURE



U S Presidential Election Schema



EVALUATION CRITERIA

SOCIAL-MEDIA TEXT
(July 12,2016)



EVENT-SPECIFIC SCHEMA-BASED KNOWLEDGE

- July 12 – Bernie Sanders endorses Hillary Clinton

United States Presidential Election 2016 timeline*

We evaluate the performance of our approach with respect to the temporal facts associated with United States Presidential Election 2016 timeline article page from DBpedia.

*https://en.wikipedia.org/wiki/United_States_presidential_election,_2016_timeline

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