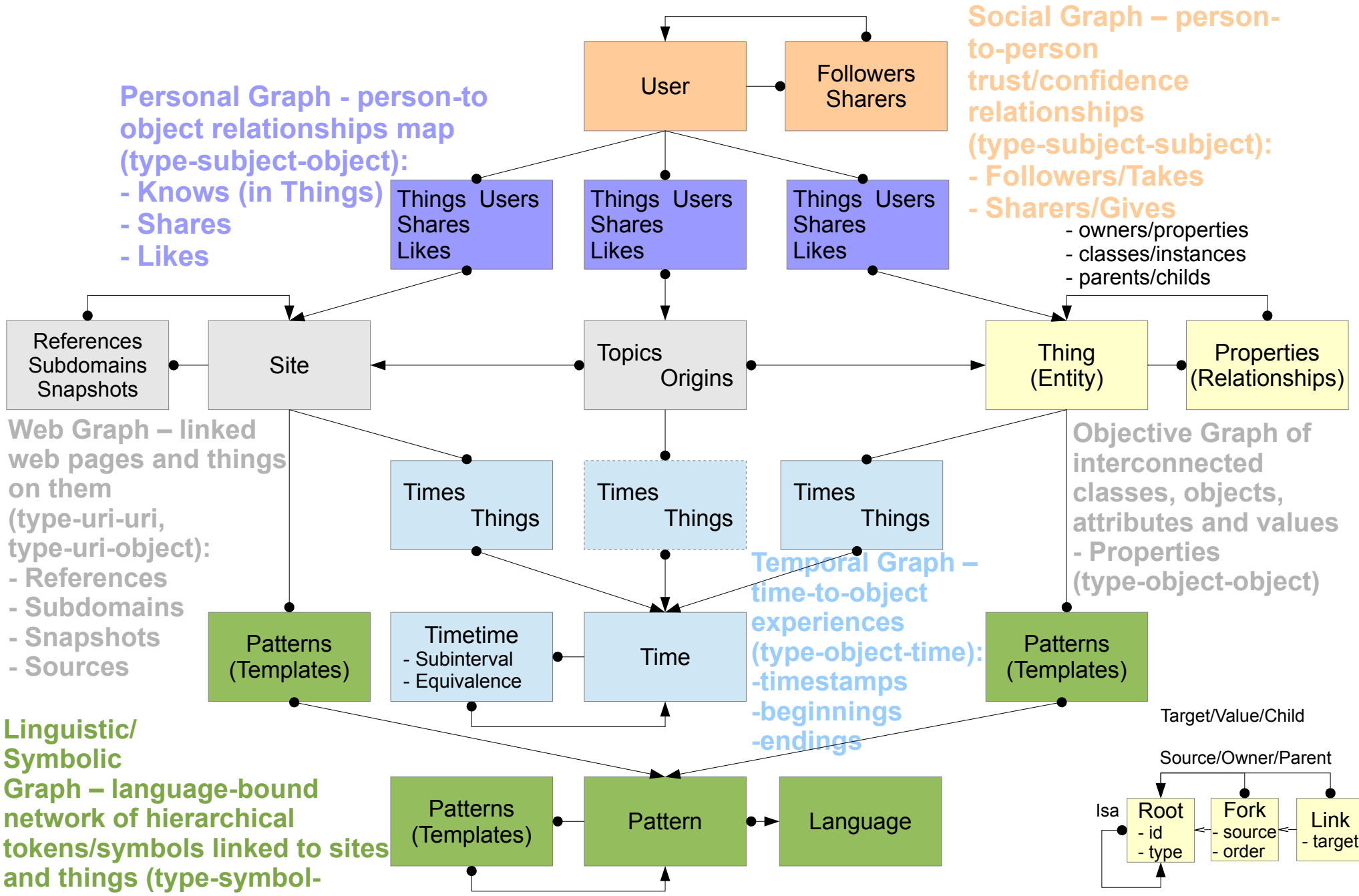


# Latent Semantic Search and Information Extraction Architecture

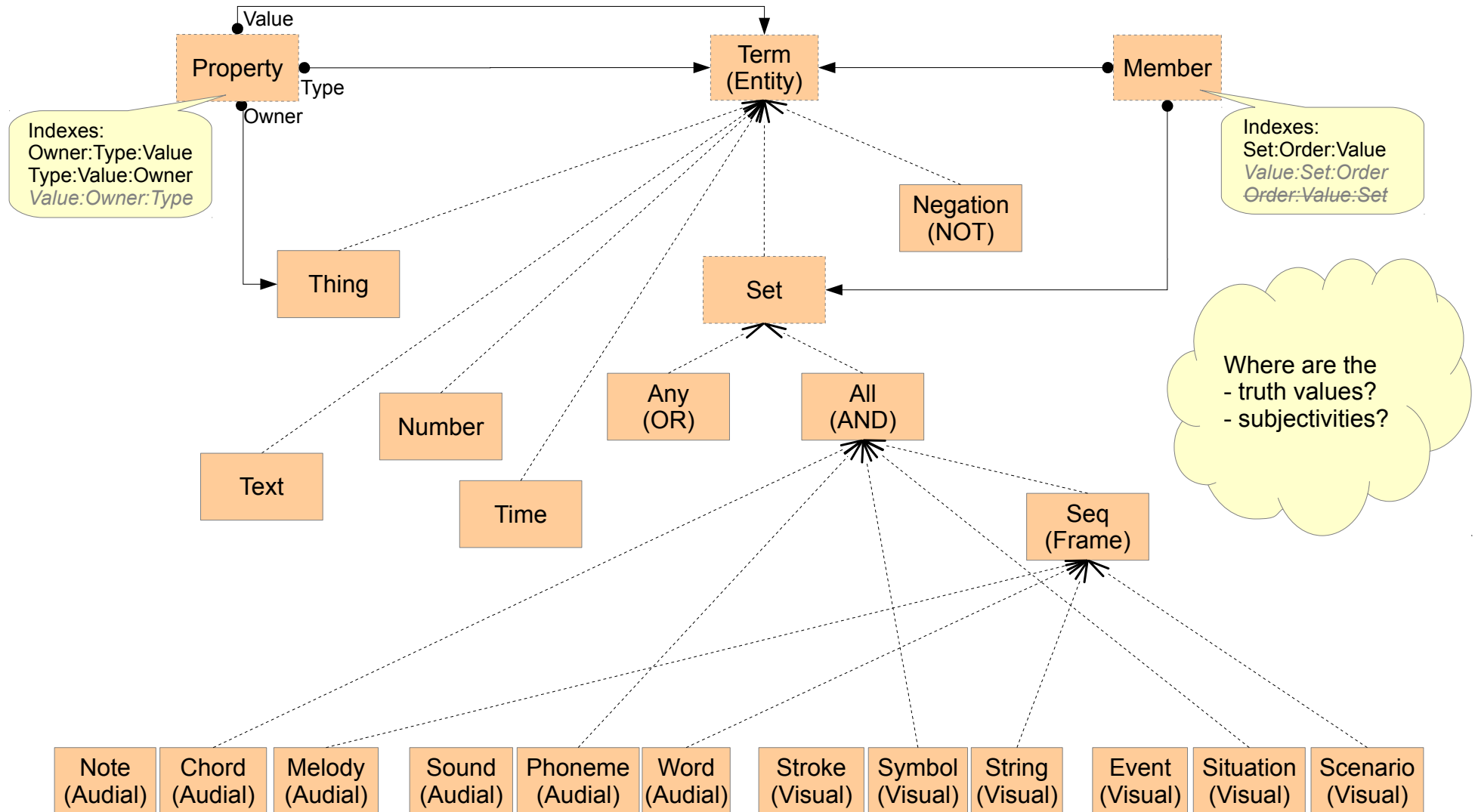
Anton Kolonin  
[akolonin@aigents.com](mailto:akolonin@aigents.com)



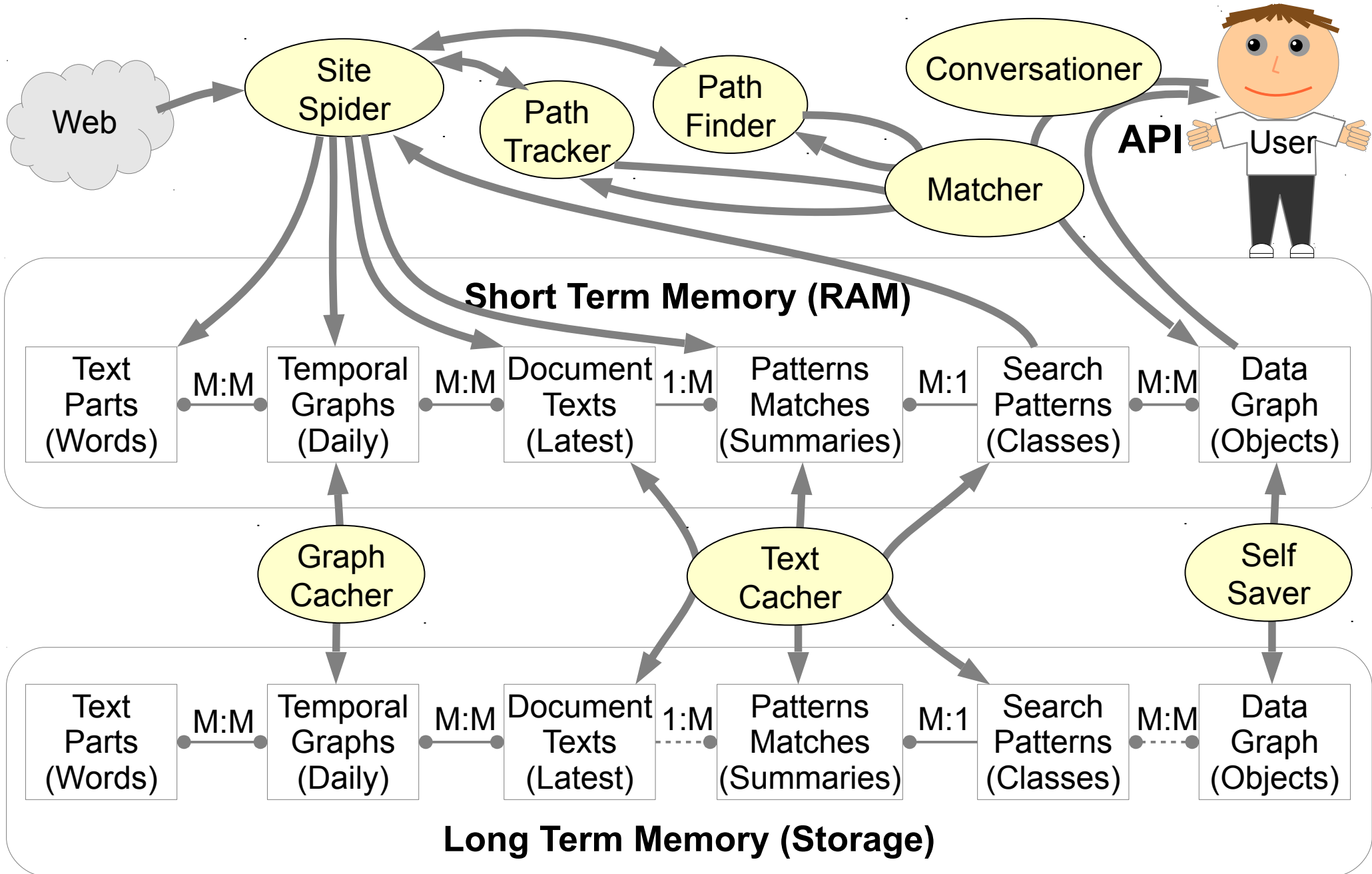
# Aigents® Upper Ontology for Online Media & News Monitoring & Studies



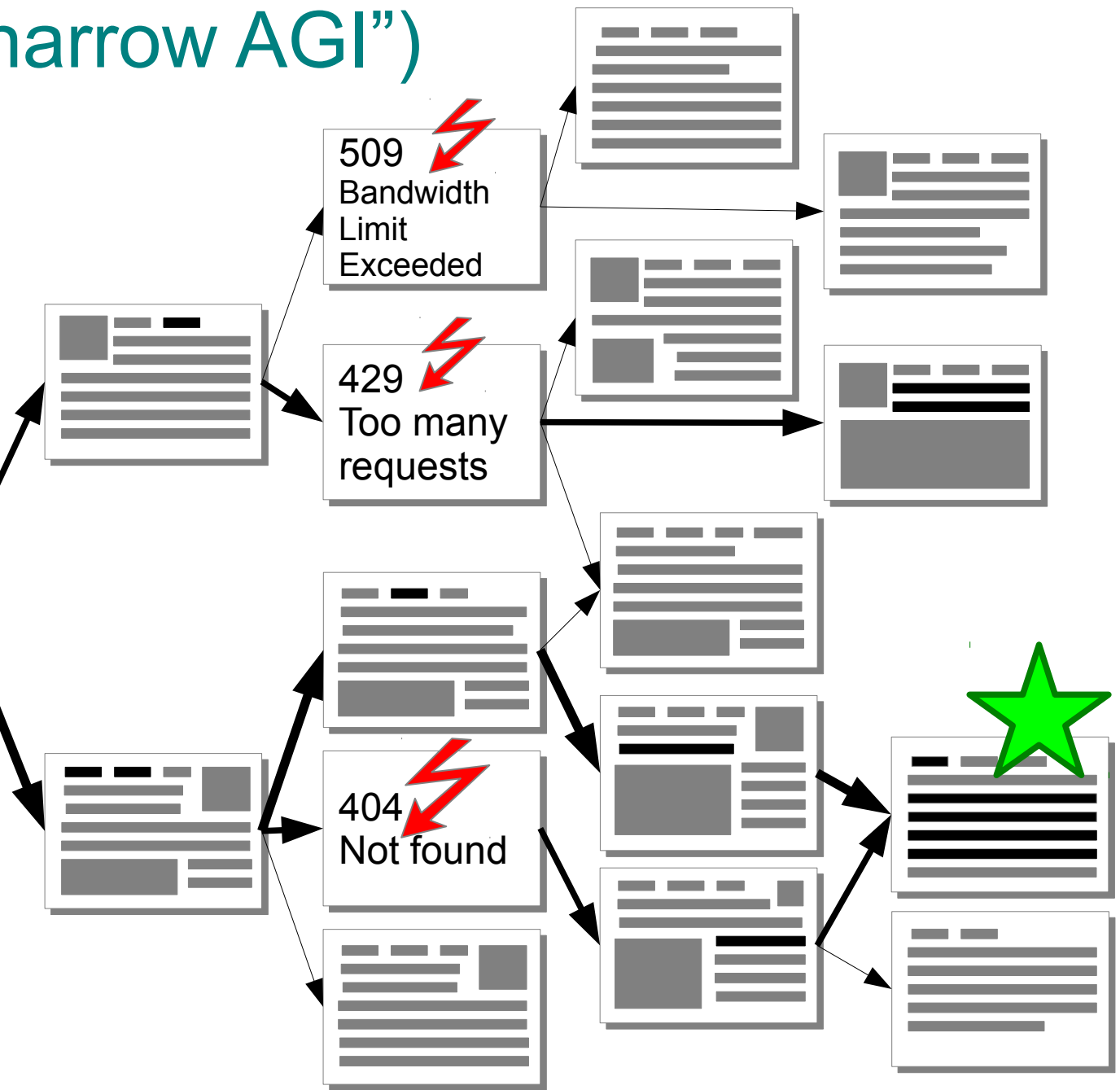
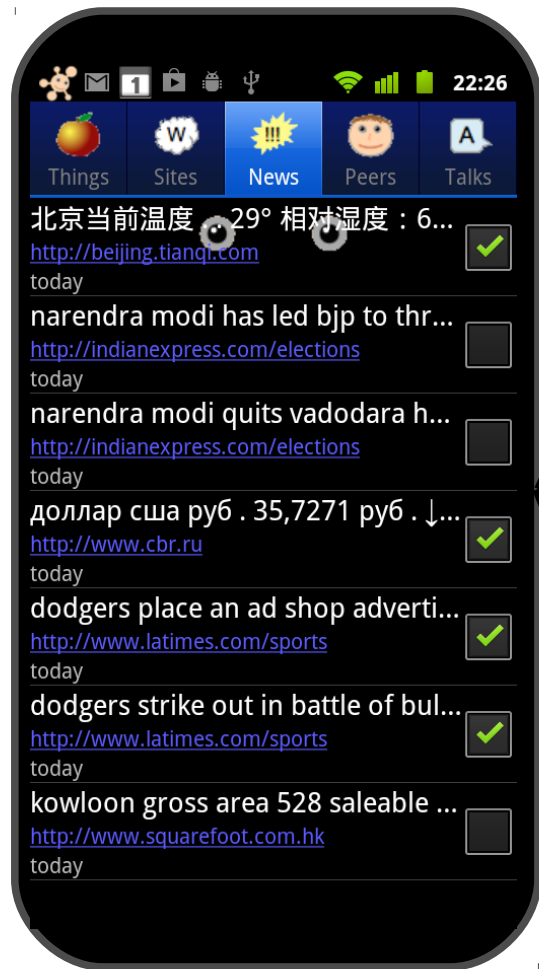
# Aigents® Foundation Ontology for Data and Meta-Data



# Autonomous Adaptive Search Architecture

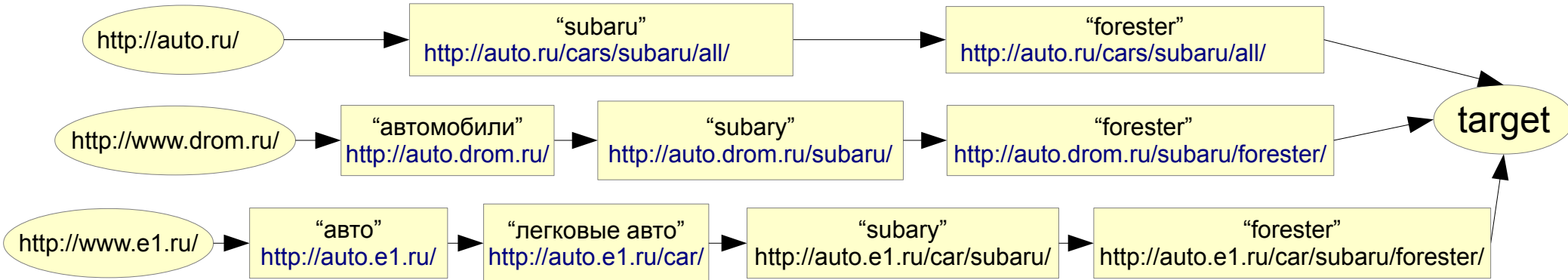


# Adaptive experiential learning for targeted search (as a “narrow AGI”)

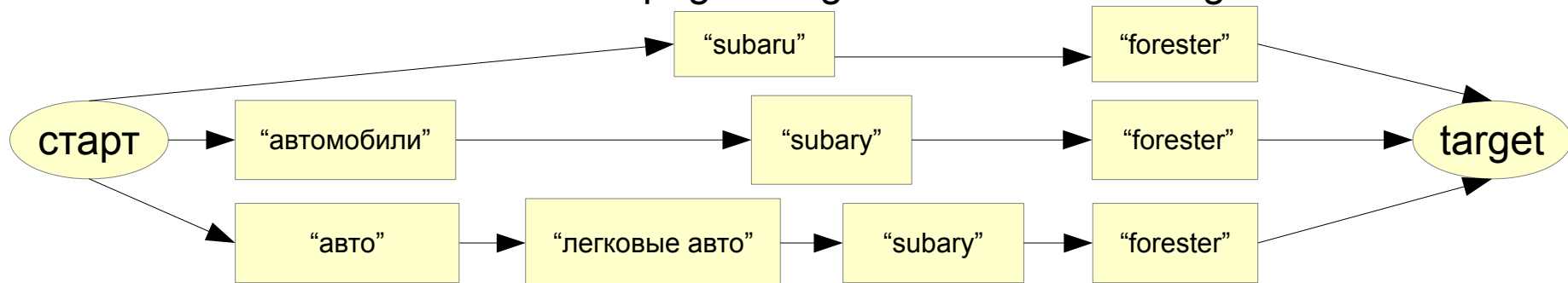


# “Process Mining” for Optimal Web Page Navigation Robotic Process Automation

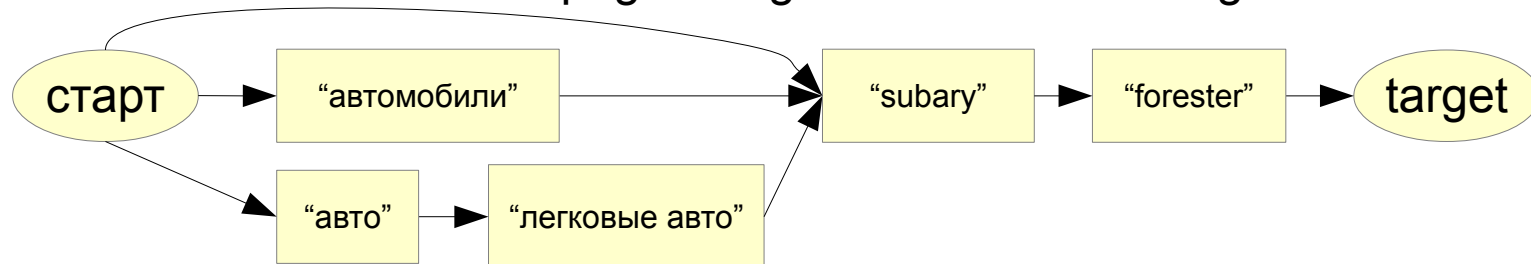
Possible scenarios of web page navigation routes while searching “Subaru” car deals



Classes of scenarios of web page navigation while searching “Subaru” car deals



Generalized scenario of web page navigation while searching “Subaru” car deals





# Dual PathFinder/PathTracker algorithm for exploratory/conservative web page browsing

---

## Algorithm 1 PathTracker (recursive)

---

**Input:** Goal pattern, starting page, known “path set”  
**Parameter:** modality (“exhaustive” or “quick”)  
**Output:** “result set” of pages with pattern matches

- 1: **Get** the “page context” from page
- 2: **Evaluate** “page context” against the goal pattern
- 3: **If** “page context” is matching the goal:
- 4:     **Add** matching results to “result set”
- 5:     **If** “modality” is not “exhaustive”:
- 6:         **Return** “result set”
- 7: **Get** “path set” leading to goal
- 8: **Get** all “link contexts” from page
- 9: **Evaluate** “path set” items against the “link contexts” from the shortest path in “path set” to longest one:
- 10:    **For each** “link context” matching “path set” item:
- 11:       **Reduce** “path set” excluding the item (“burnout”)
- 12:       **Follow** the link of “link context” to new page
- 13:       **Run** Path Tracker recursion (same goal pattern, new page, new “path set”)
- 14:       **On** successful return:
- 15:         **If** modality is not “exhaustive”:
- 16:             **break**
- 17: **If** “result set” is not empty:
- 18:     **Return** “result set”
- 19: **If** not recursing:
- 20:     **Run** PathFinder

---

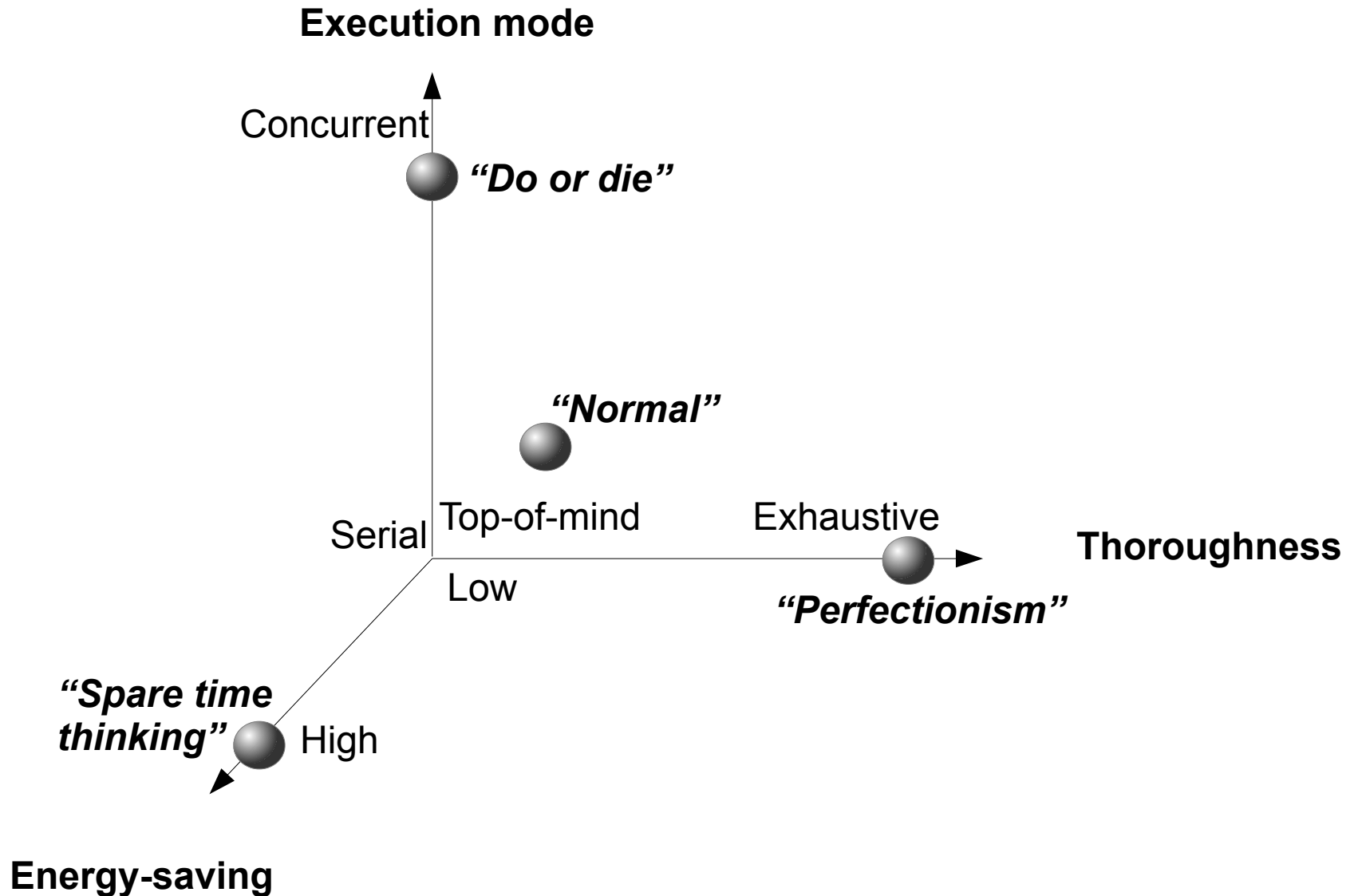
## Algorithm 2 Path Finder (recursive)

---

**Input:** Goal pattern, starting page, hypothetical “path set”  
**Parameter:** modality (“exhaustive” or “quick”)  
**Output:** “result set” of pages with pattern matches and new “path set”

- 1: **Get** the “page context” from page
- 2: **Evaluate** “page context” against the goal pattern
- 3: **If** “page context” is matching the goal:
- 4:     **Add** matching results to “result set”
- 5:     **Retain** the hypothetical “path set” as proven
- 6:     **If** “modality” is not “exhaustive”:
- 7:         **Return** “result set” and retained “path sets”
- 8: **Get** all “link contexts” from page
- 9: **Evaluate** all possibilities extending hypothetical “path set” with new “link contexts”:
- 10:    **For each** “link context”:
- 11:       **Add** new “link context” to current “path set” creating hypothetical “path set”
- 12:       **Follow** the link of “link context” to new page
- 13:       **Run** Path Finder recursion (same goal pattern, new page, new hypothetical “path set”)
- 14:       **On** successful return:
- 15:         **If** modality is not “exhaustive”:
- 16:             **break**
- 17: **If** “result set” is not empty:
- 18:     **Return** “result set” and retained “path set”
- 19: **If** not recursing:
- 20:     **Merge** retained “path sets” with original one known for the goal

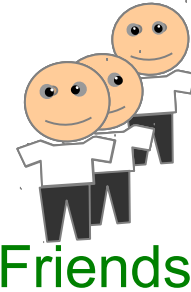
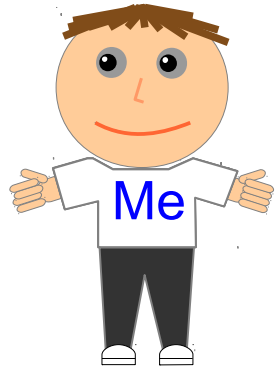
# “Artificially Psychological Space” of the search/browse agent parameters optimization





# Collaborative News Filtering

Monitoring web pages and extracting textual information with account to Personal and Social relevances

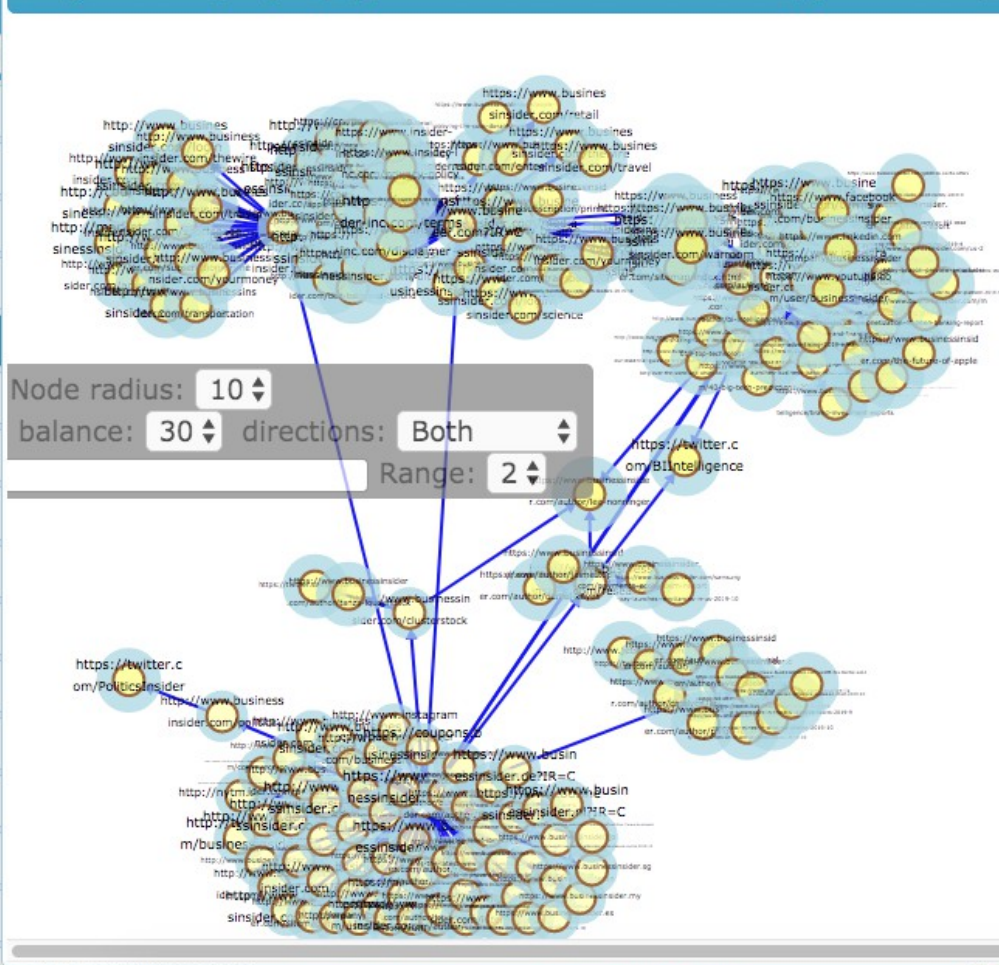


A screenshot of a web browser showing a search for 'trump' on the website 'aigents.com'. The search results are filtered by date. The first result is from 'today' and is highlighted in green. It features a thumbnail of an American flag and a headline about a report on Russian hacking. The second result is also from 'today' and is highlighted in green, with a thumbnail of a person on a beach. The third result is from 'yesterday' and is highlighted in green, with a thumbnail of a building. The fourth result is from '2017-09-14' and is highlighted in green, with a thumbnail of a man in a red jacket. The fifth result is from '2017-09-10' and is highlighted in green, with a thumbnail of a man in a red jacket. A blue arrow points from the 'Me' character to the search bar, and a green arrow points from the 'Friends' characters to the search results. A green vertical bar is on the right side of the page.

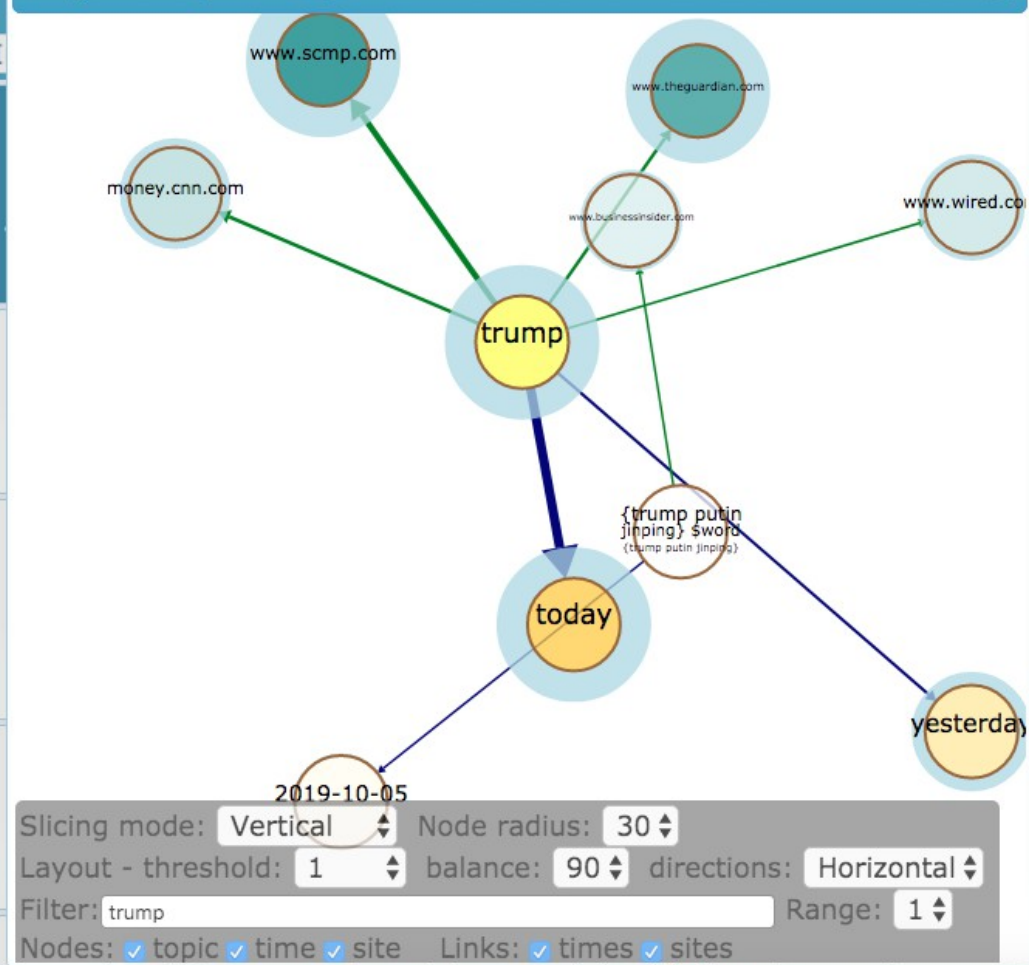
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# Exploring Search Space with Temporal Semantic Graphs with “Liquid Rank” Assessment of Relevance

Agents Graph (http://www.businessinsider.com/)



Agents Topics Graph



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# Thank you for attention!

## Questions?

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