

Semantic Social Network

reimagined

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Semantic Network

1956

knowledge base that represents semantic relations between concepts in a network

Social Semantic Web

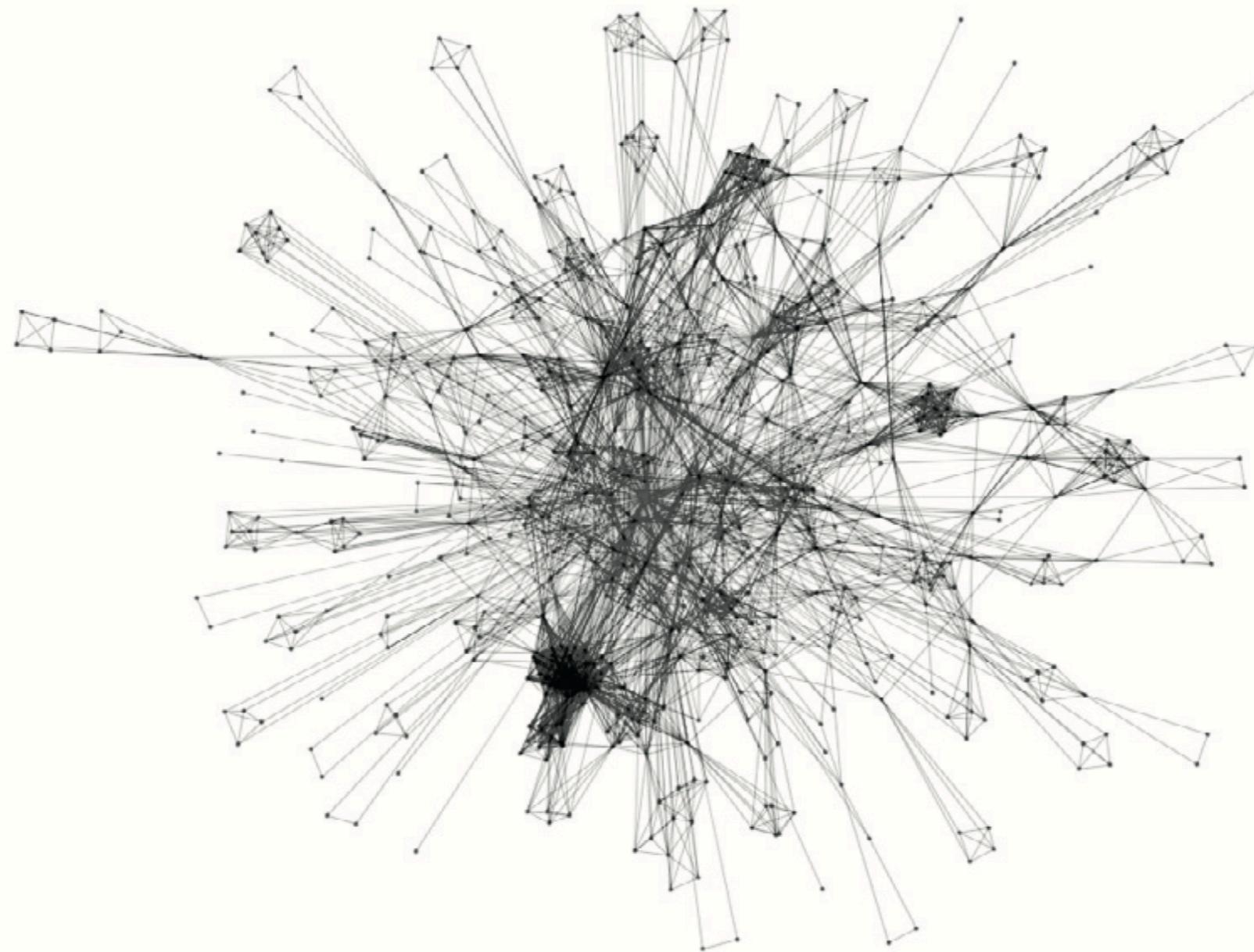
2003

Web of collective knowledge systems, which are able to provide useful information based on human contributions and which get better as more people participate

Semantic Social Network 2004

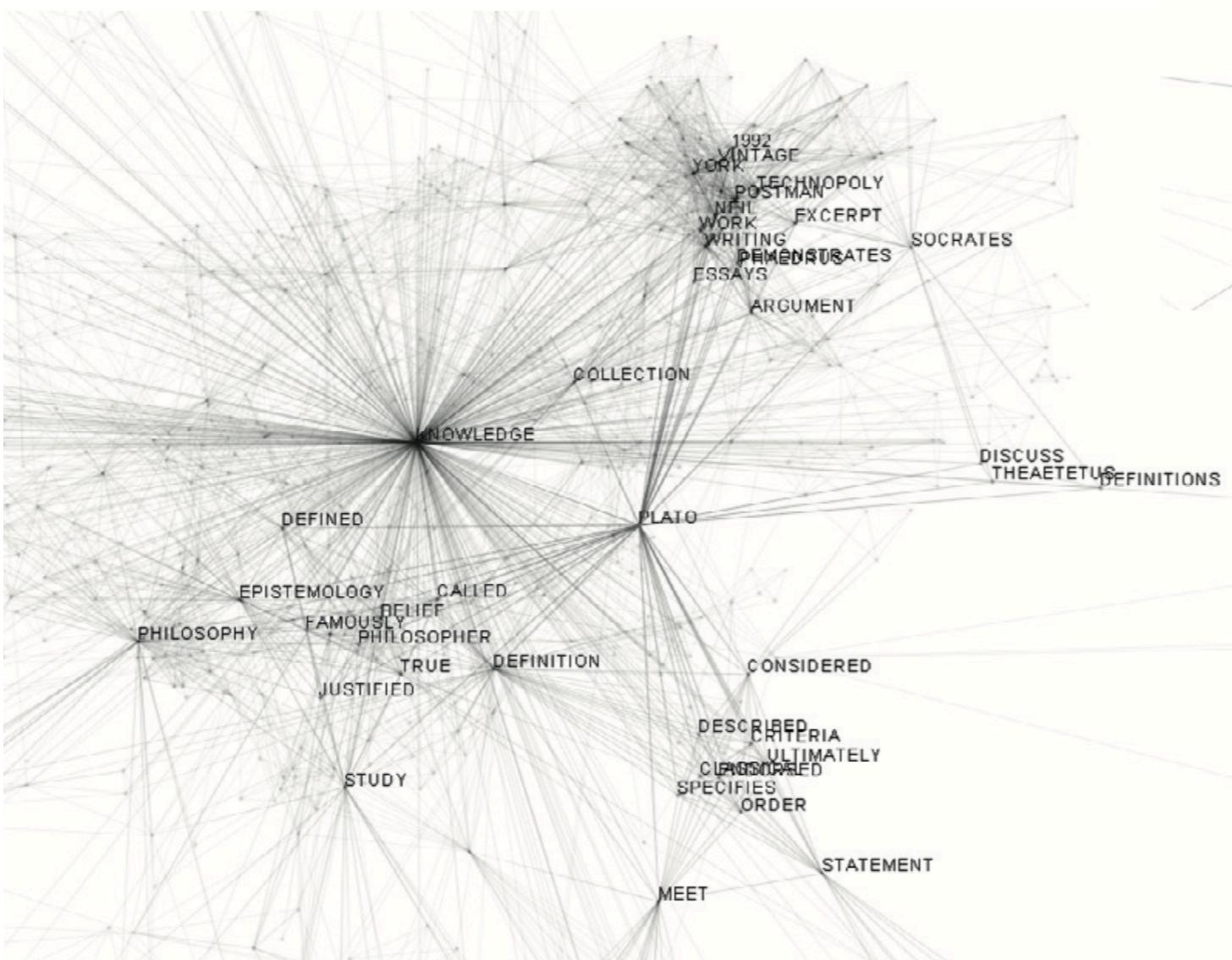
to describe the application of Semantic Web technologies and online social networks

Overview of the semantic network retrieved from (Wikipedia, 2012a). Local hubs and clusters are grouped around the central hub "knowledge". The topology can be characterized as a scale-free network with small-world properties.

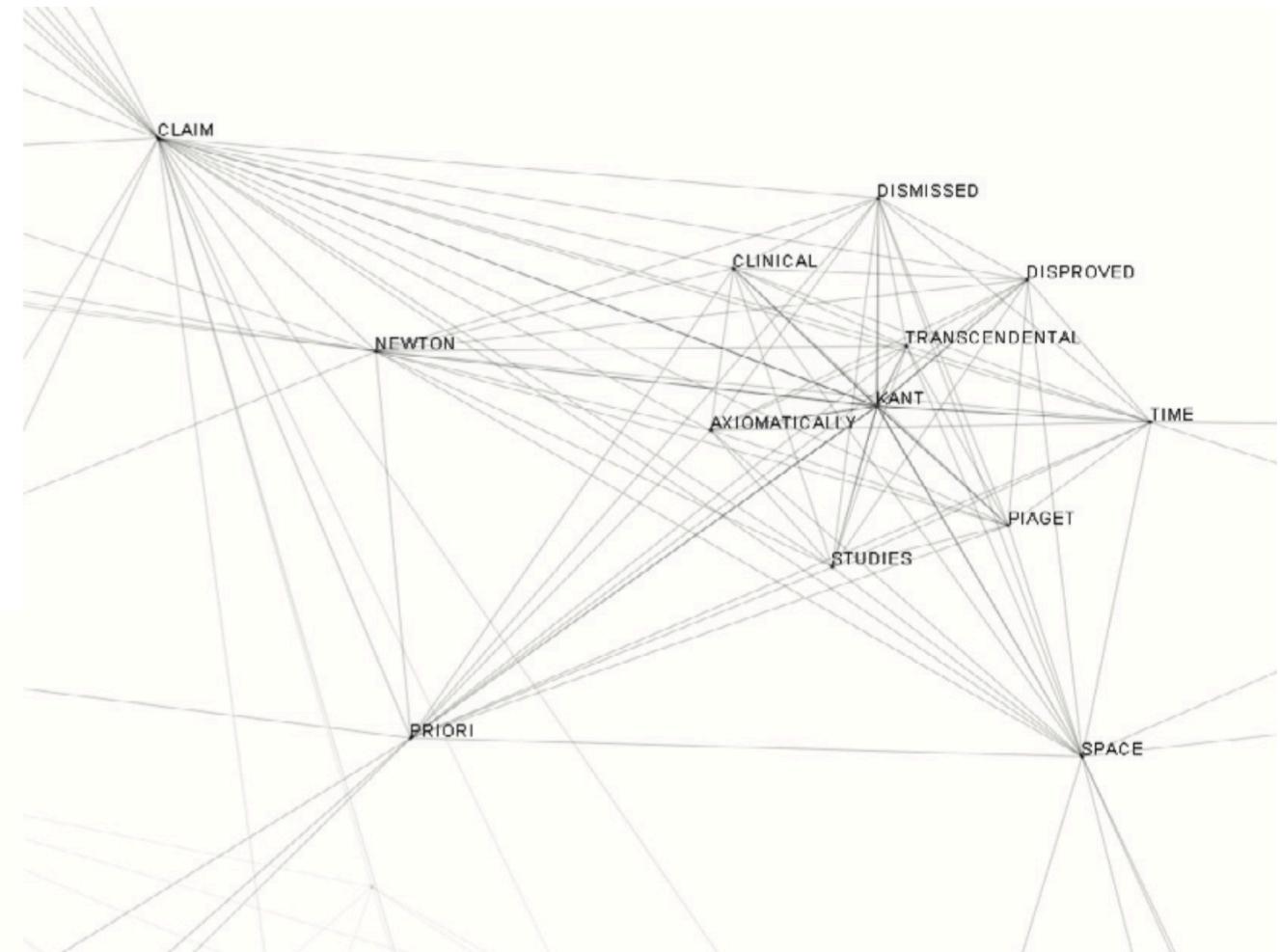


Selection of a node at some point of interest ("plato") to examine the position and connectedness in the network.

"Plato" can be identified as a local hub that is connected to at least four clusters that encode specific semantic fields.



"plato" has a higher influence in the network than "kant"



**Local clustering at the node "kant" with connecting hubs in the periphery.
Clusters represent local semantic fields that can encode special topics, as its nodes have no significant connections to other nodes.**

Table 1. Semantic network analysis and exploration for qualitative and quantitative interpretation of semantic network elements

Element	Quantity	Quality
Network structure	Statistics like degree distribution	Characteristic topological properties of the network.
Edges	Weight	Collocation, semantic relation, meaning.
Paths	Length	Set of connected semantic relations.
Nodes	Degree ($d(v)$)	Complexity of a semantic concept on word basis. Position in a semantic field.
Hubs	Centrality measures, filtering ($d(v) \geq n$)	<i>Global</i> importance of a node relative to the network. Node position in a <i>local</i> context, e.g. connection between complex semantic concepts or topics.
Subgraphs	(see network structure above)	Complex semantic context encoded in interconnected semantic fields.
Clusters	Clustering coefficient; filtering ($d(v) \leq n$)	Strongly connected components encoding specific semantic topics or complex concepts.

Twitter universe inspired by NYU and ITP