

Beyond Semantic Web

SEMANTIC SPACE

Balisage Conference
August 2008 Montréal

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Layers of Symbolic Tools

Cyberspace



(From 2000) Ubiquity, interconnection and animation of cultural signs (software) in cyberspace. Socio-semantic computation. Toward new signs systems.

Mass media



(From 1500) massive technical self-reproduction and diffusion of the alphabet and other cultural signs. New languages (animated images, etc.) Scientific notation progress.

Alphabet



(From - 1000) Digitization and universalization of writing reduced to thirty phonetic signs. Notation of numbers by position, zero.

Writing



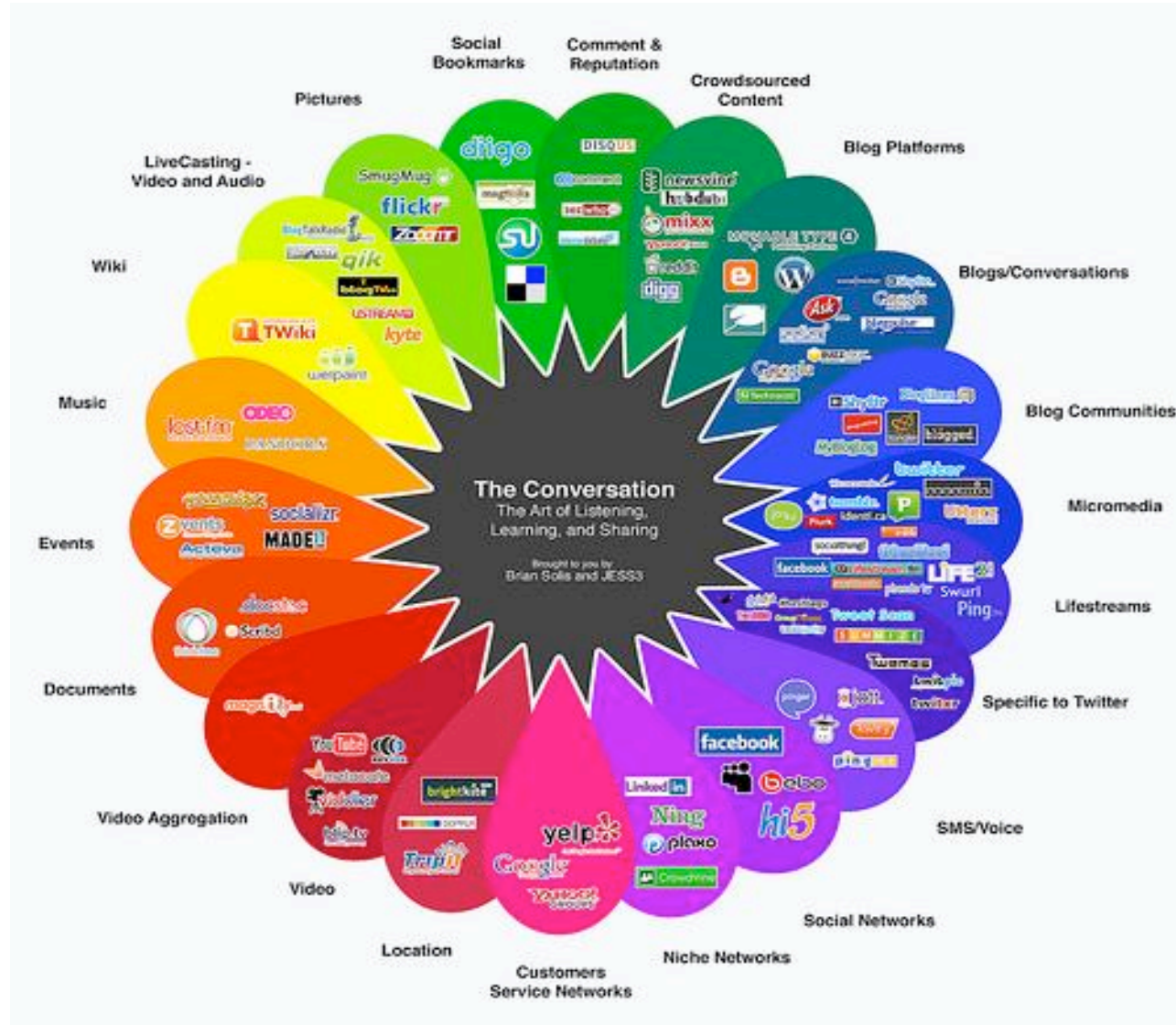
(From - 3000) Autonomous technical memory of language. Ideographic Signs. Numerals, measurement units.

Orality



(From - 300 000) myths, rites, oral transmission, memory inscribed in matter. Icons. Arts of memory.

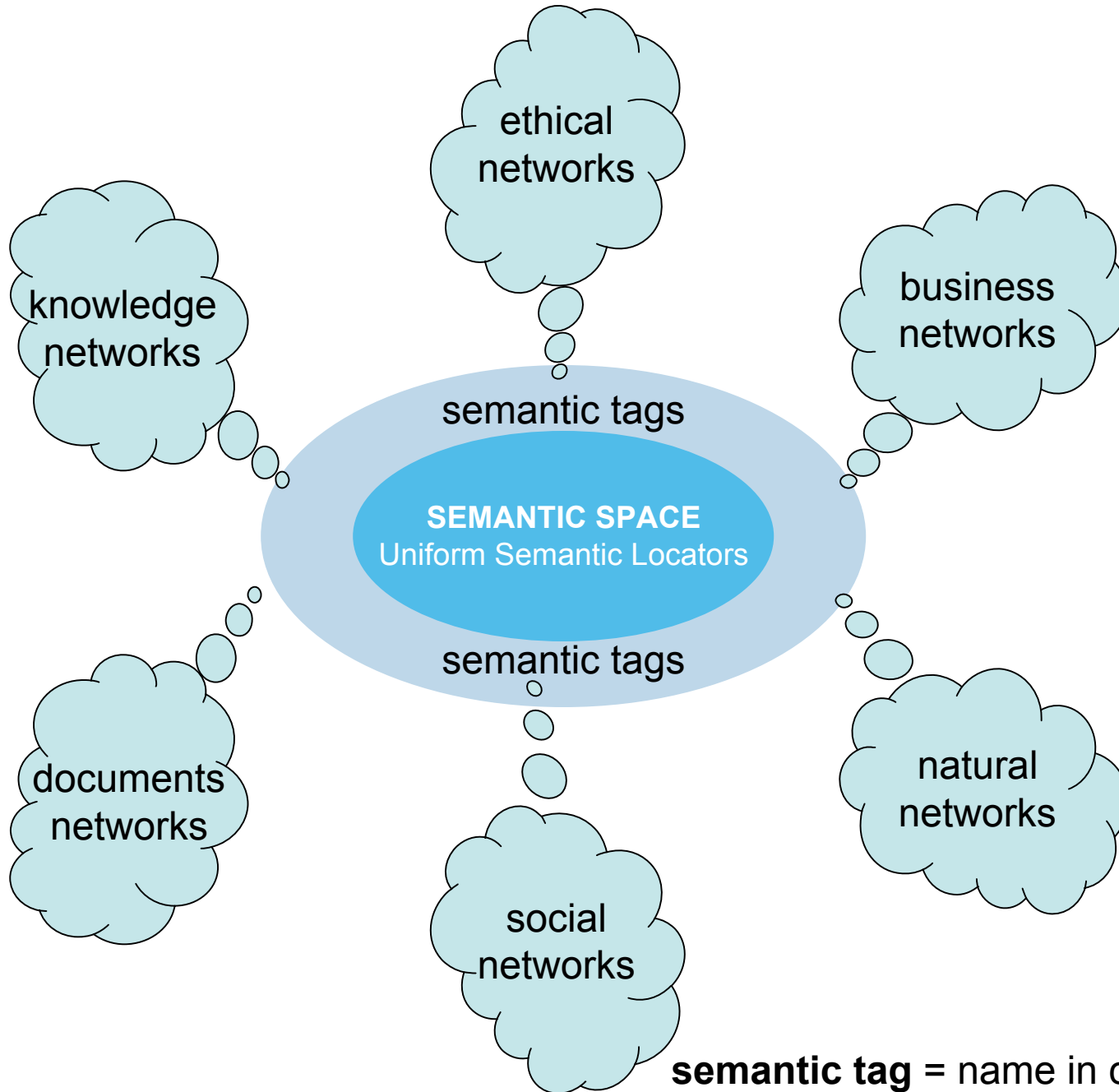
Web n.0, Social Computing, Crowdsourcing : A Global Conversation ?



Yes, the digital conversation ! But what about semantic interoperability: different languages, folksonomies, classifications, ontologies...?

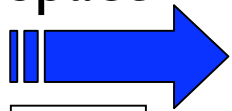
Cloud = distributed databases for socio-semiotic computing of...

Toward an Inter-Cloud Collective Intelligence



Digital Memory Evolution

Semantic
Space



2015

Interconnection between semantic tags.

USL = <IEML> *concept address** </IEML>.

Collaborative network of semantic agents, subject-centric computation.

Collective intelligence growth. Augmentation of sense-making.

Web



1995

Interconnection between documents.

URL = http:// page address.

Centralized search engines, browsers.

Global multimedia public sphere.

Internet



1980

Interconnection between computers.

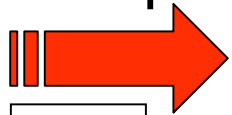
Internet Protocol = server address.

Routers, user-friendly PC applications

Personal computing. Virtual communities.

Digital media convergence.

Computer



1950

Interconnection between transistors.

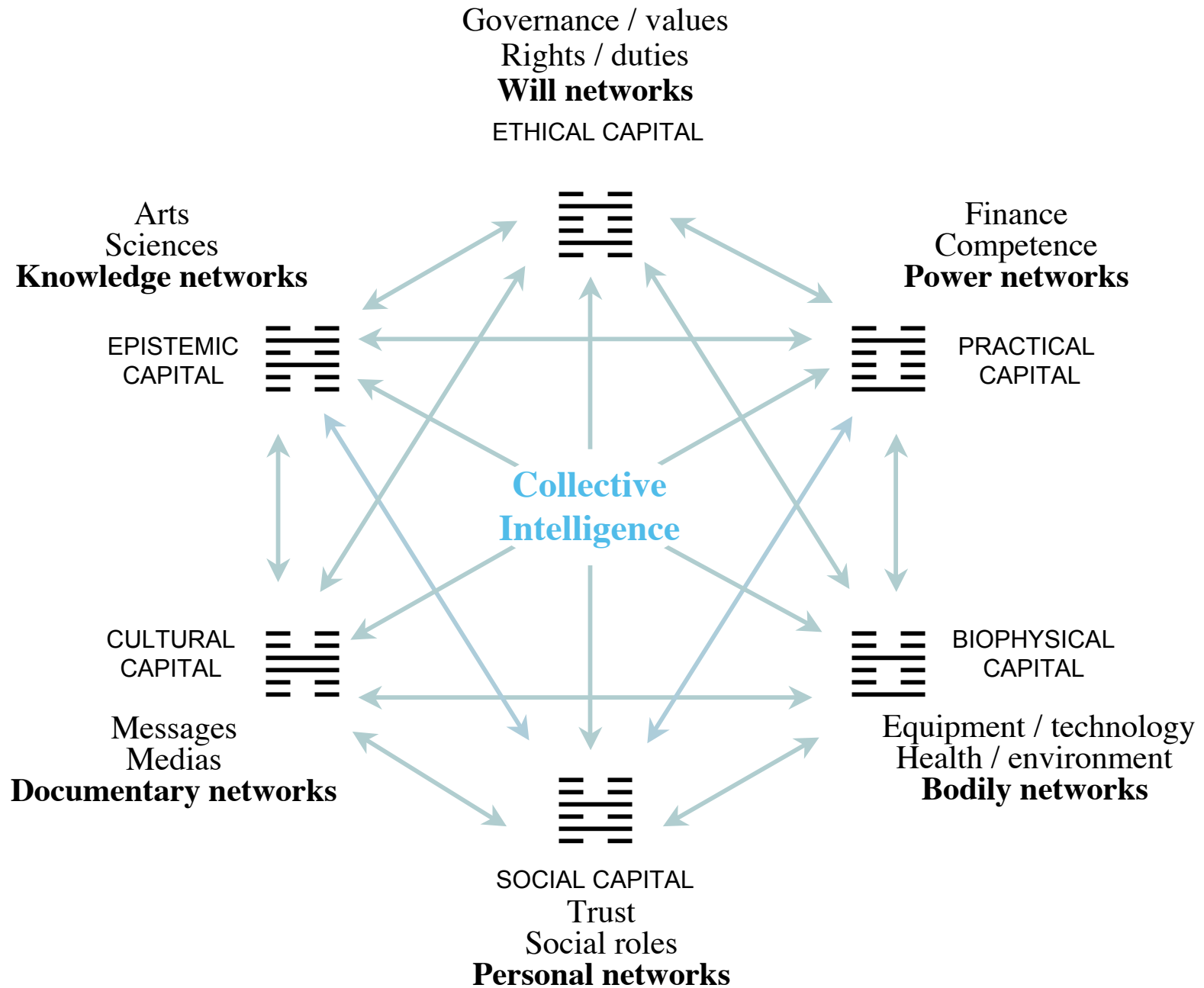
Computer memory = bits address.

Operating systems, programming languages

Augmentation of arithmetical and logical processing.

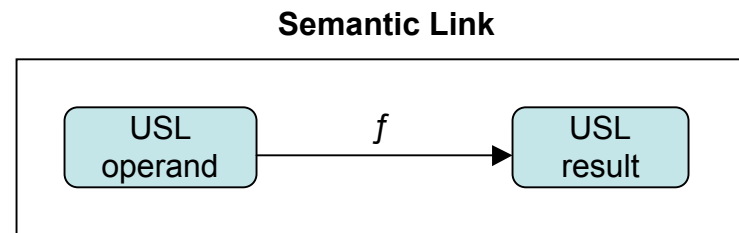
IEML Semantic Space: the metalanguage

- IEML is a finite regular language in Chomsky's classification
- 1 IEML USL
 - 364 semantic characters (one semantic character = six bits)
 - 6 formal concepts of 6 layers of recursive complexity combining 6 primitives
- There is a *cryptographic quantity* of IEML USLs
- Interpretability in natural languages
 - Layers and compositionality: roots, words, phrases, paragraphs, texts...
 - Grammatical functions: subject, verb, object...
 - Conjugations, cases, prepositions, adverbs...
- The multi-lingual IEML dictionary is built in such a way that *the semantic relationships between signifieds (concepts) are reflected into the syntactic relationships between signifiers (IEML USL code)*.



IEML Semantic Space: the group of transformations

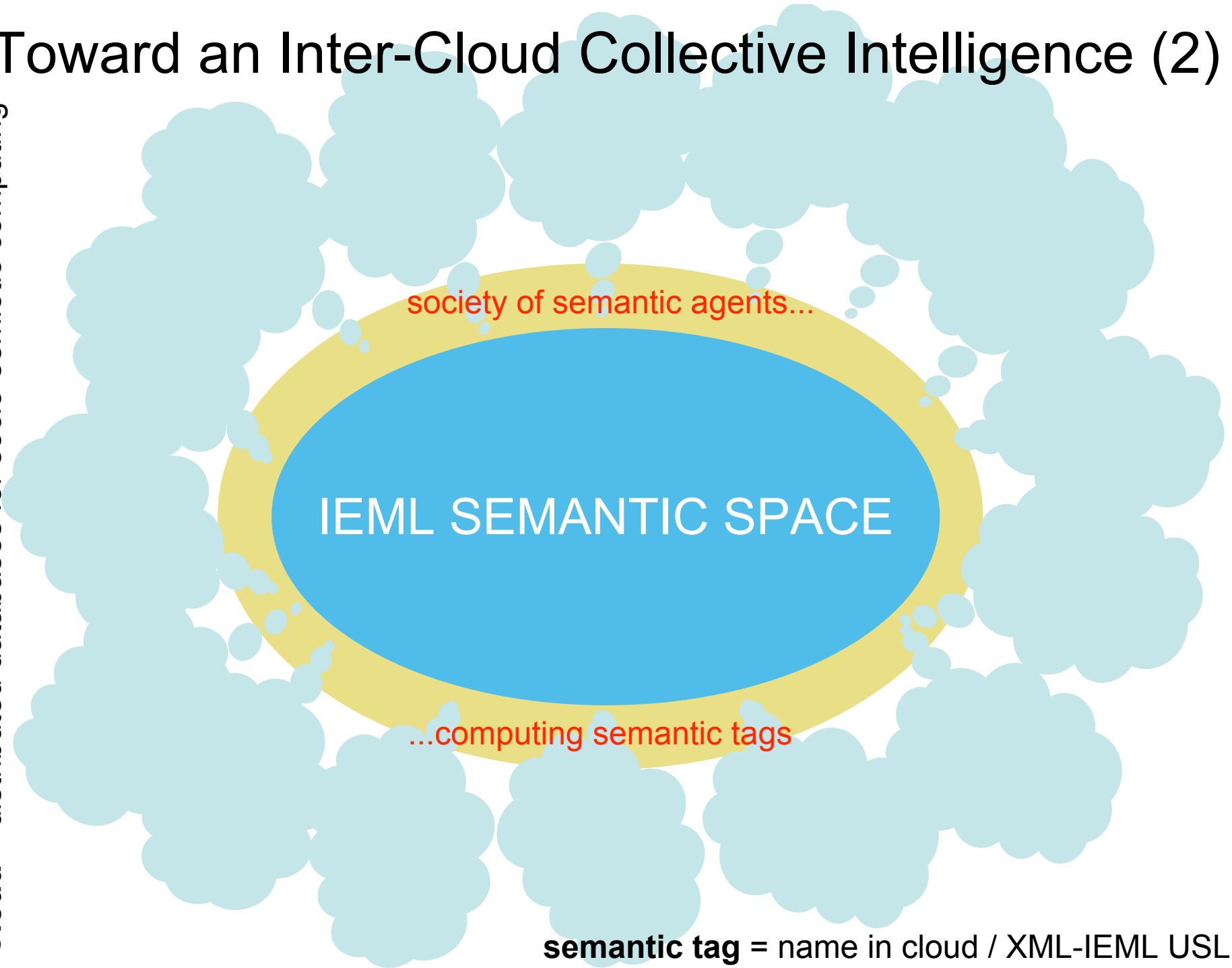
- IEML USLs are elements of a finite field : a group of semantic transformations allowing...
 - all *set operations* => semantic functions combining set operations
 - concepts change of *syntactic positions* in USLs
- IEML USL = formal thought = variable = set of semantic singularities
- IEML Hyperlink = cognitive operation = function = computable transformations between semantic singularities
 - generalization, particularization, analysis, synthesis, sorting, substitution on parts, mereological composition or decomposition...



- Automatic generation of semantic links between USLs from the dictionary
- Programmation, observation, mapping, navigation of...
 - semantic networks, semantic paths, semantic currents...
- *A new intellectual technology / symbolic system for inter-cloud socio-semantic computing (collective intelligence).*

Toward an Inter-Cloud Collective Intelligence (2)

Cloud = distributed databases for socio-semiotic computing



society of semantic agents...

IEML SEMANTIC SPACE

...computing semantic tags

semantic tag = name in cloud / XML-IEML USL

Technical proof of concept

(currently under construction)

- 1) Dictionary IEMML / french / english / portugese, managed by versavant topic-maps, open source in XML
- 2) IEMML Parser and automatic translator in XML format
- 3) IEMML-oriented customizable semantic database, created and used through a browser.
- 4) semi-automatic translation tool of del.icio.us tags into IEMML tags.
- 5) Python-based IEMML semantic network construction tool.
- Service-oriented architecture based on the exchange of XML-IEMML flows
- **A semantic agent is a set of IEMML services**