

Co-construction d'ontologies sémiotiques

Application au projet

Diaspora Knowledge Network (DKN)

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Co-construire des ontologies sémiotiques

Application au projet Diaspora Knowledge Network (DKN)

AGENDA:

1. Bref aperçu du projet DKN
2. Construction d'ontologie sémiotique avec Agoræ dans le projet DKN « SEQXAM »
(Démo)
3. Réflexions / approfondissements actuels

1- The Diaspora Knowledge Network (DKN) project

- The **Diaspora Knowledge Network** project is UNESCO-sponsored and brings together social and computer scientists from:
 - The National Center for Scientific Research in France (CNRS)
 - The French Institute for Research on Development (IRD)
 - The University of Technology at Troyes, France
 - A Civil Society Association for the public use of ICTs (VECAM)+ *various actors associated (for example in in Columbia : Colcencias, Cenicafe...) for « mobilization scenarios »*
- **The problem : Scientists and Engineers are mobile in a global job market**
 - some countries are hurt (brain drain);
 - other countries benefit (brain gain)

We want both the sending and receiving countries to benefit from the mobility of highly skilled scientists and engineers

The Diaspora Knowledge Network (DKN) project

Goal: Transforming “brain drain” into “brain gain”

- *Definition of Brain gain : Capacity of mobilizing scientific skills and knowledge available in a host country for use in support of projects of interest in a home country.*
Example: Science networks which already exist between France and Colombia
- Conditions of “brain gain”
 - Articulating top-down and bottom-up programmes of scientific research.
 - Having suitable information systems for assisting this coordination.
 - Having reasonably stable and long-term perspectives of collaborative work.
- Case studies (France \leftrightarrow Columbia)
 - They are designed to look at the 3 conditions mentioned.
 - They were selected to look at 3 science policy contexts:
 1. Institutionalized networks (IRD + CENICAFE);
 2. Emerging networks (biotechnology, soil mechanics);
 3. Unstructured social networks (scientists abroad networks).

We have meet members of projects in the 3 categories to study what were the articulation problems, the KM aspects, etc.

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The Diaspora Knowledge Network (DKN) project

Emerging networks

For example, the SEQXAM project
biotechnology (plant genomics)
4 searchers

Genetic analysis of bacteria *Xanthomonas axonopodis*
pv. *manihotis* (Xam) influence on manioc.

- Challenges:

- Make the research programme visible to national policy-makers in both countries
- Uncertain funding for brain gain over time = difficulty in organizing mobility in the network.

The Diaspora Knowledge Network (DKN) project

DKN tools: building bridges between science policy and on-going research

- **A Wiki tool (VCAM platform)**
- **A project management tool: PIC (Topica-Tech)**
- **A language analysis tools: Calliope (Limsi)**
- **A socio semantic Web tool: Agoræ (Tech-CICO)**
- Etc.

Interaction spaces for research networks	DKN project information mediation	Institutional sources of information
WIKI + SPIP website tools	Project management software	Project databases (Knowledge archives)
	Knowledge management software	Skills databases
	Document management software	Call for proposals databases

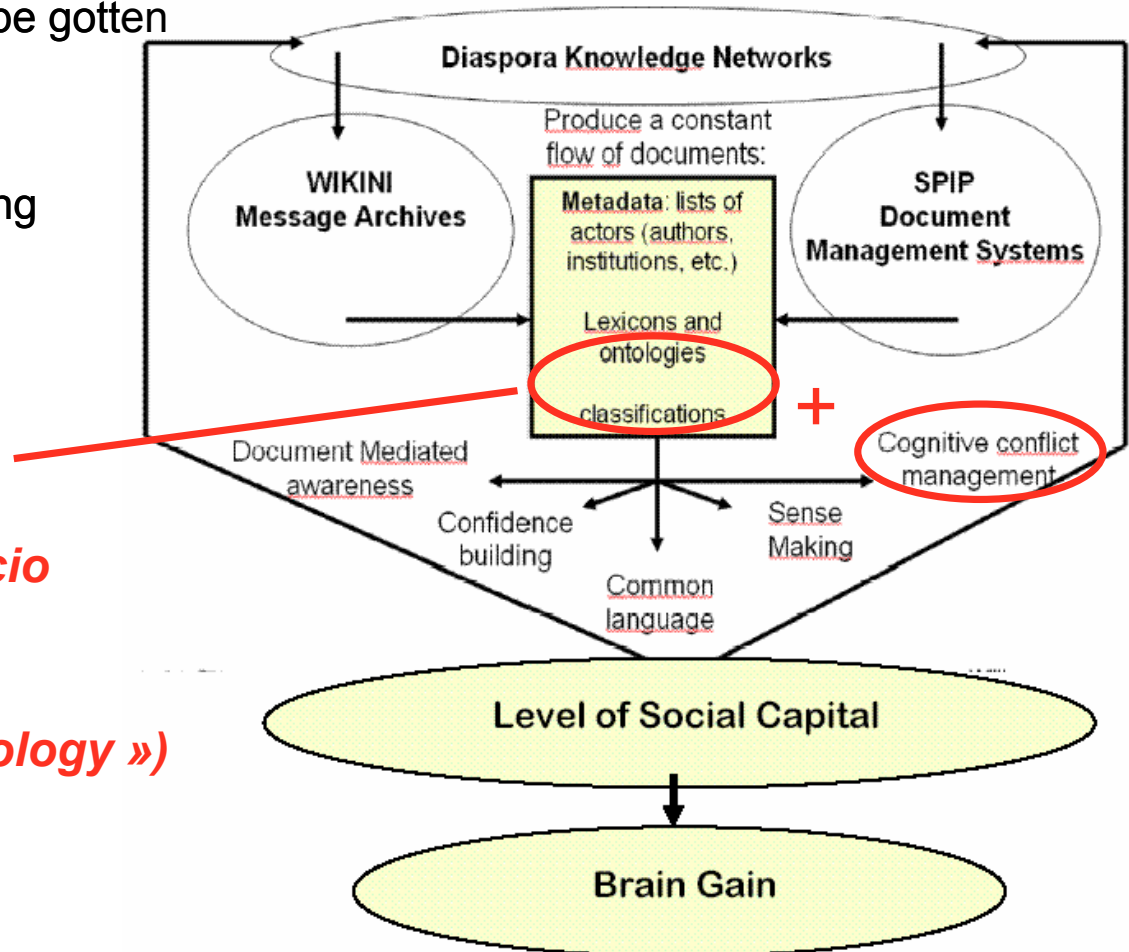
Our goal in the DKN project:

- User evaluation → social validation. The groupware toolbox must match special requirements of DKN communities :

A « brain gain » can be gotten by

- Awareness
- Confidence building
- Sense making
- Cognitive conflict management

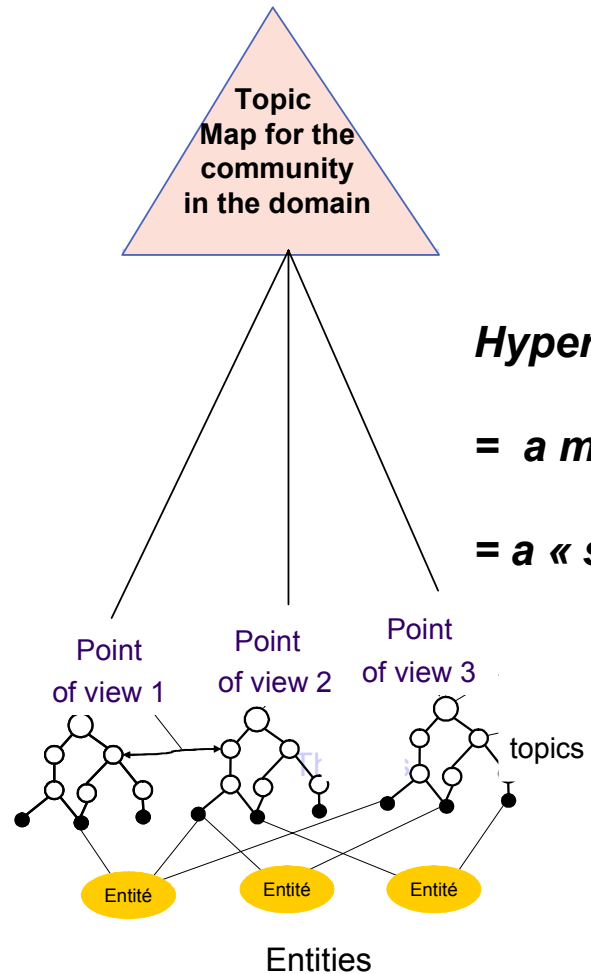
*Agoræ and “socio semantic Web » approach
(« semiotic ontology »)*



2 - Construction d'ontologie sémiotique dans le projet DKN « SEQXAM »

- Le modèle : Hypertopic
- Comment construire « collectivement »
(*l'activité socio sémantique*) dans le cas du
projet SEqXAM?

***a « Hypertopic » map
includes multiples viewpoints :***



Hypertopic map

= a multi-points of view topic map

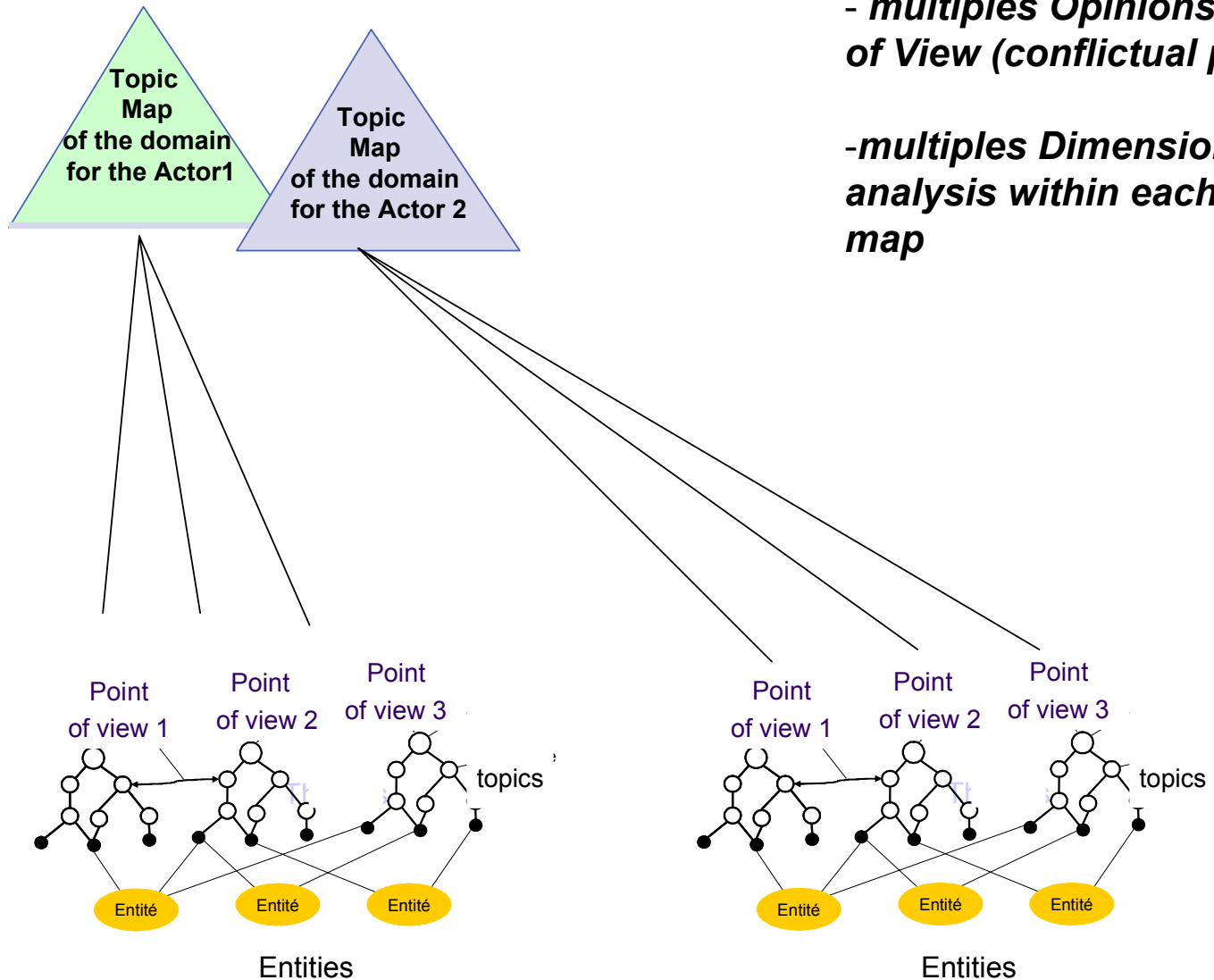
= a « semiotic ontology »

**But how to collectively
construct and maintain such a
map (*socio-semantic activity*) ?**

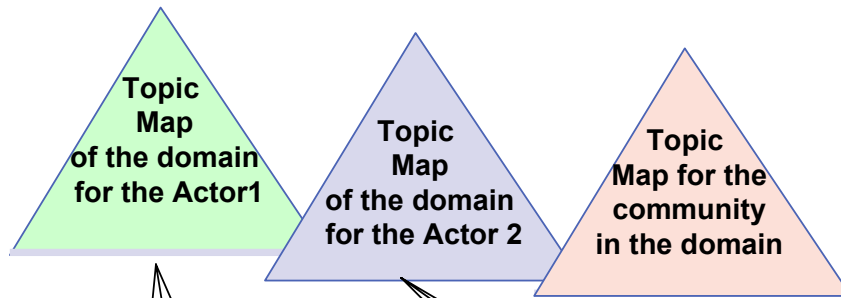
multiple viewpoints :

- multiples Opinions or Points of View (conflictual plurality)

- multiples Dimensions of analysis within each particular map



AGORAE groupware tool

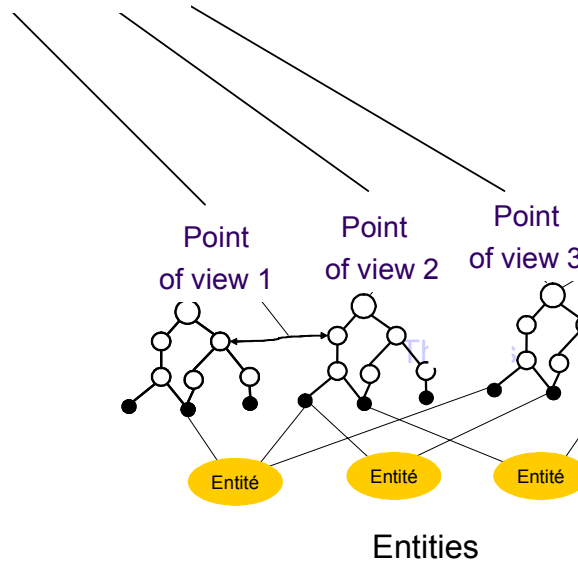
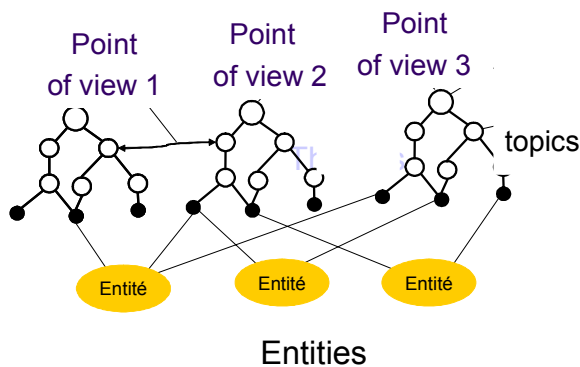


« Bootstrap » phase

“conflictual co-building” method

Several challenges:

- The dimensions of analysis
- The middle topics
- The fine grain topics
- The entities
- The resources



How to achieve these challenges?

● The entities

- Mainstream
- Peripheral
- Emergeant
- Out of scope

● The points of view

categories /
analysis dimensions
according to the actors'
opinions

● The topics

*Example in the
SEQXAM project
(Sequencing Xantomonia Manihotis)*

.....are Documents:
(scientific references, working papers...)

Adhikari, T. B., R. C. Basnyat, et al. 1999.
"Virulence of Xanthomonas oryzae pv. oryzae on
rice lines containing single resistance genes and
gene combinations." Plant disease 83(1): 46-50.

- 1st period - candid map (2 non-experts)
- 2d period - expert map 1 (Oriane: domain expert 1 -
- 3d period - expert map 2 (Carolina : domain experts 2)

*Cassava gene expression
Type III secretion pathway / secretion system
Effector proteins
Disease social consequences
Legal issues*

With help of NLP systems (Calliope, Etiq)

The main principles of the Method in the DKN-SeqXAM case:

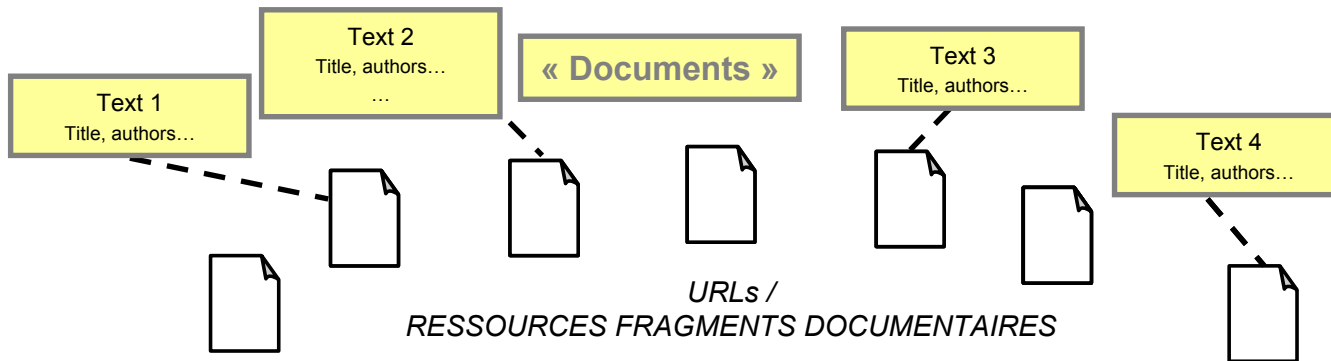
1) Starting from documentary resources

Adhikari, T. B., R. C. Basnyat, et al. 1999.
"Virulence of *Xanthomonas oryzae* pv. *oryzae* on rice lines containing single resistance genes and gene combinations." *Plant disease* 83(1): 46-50.

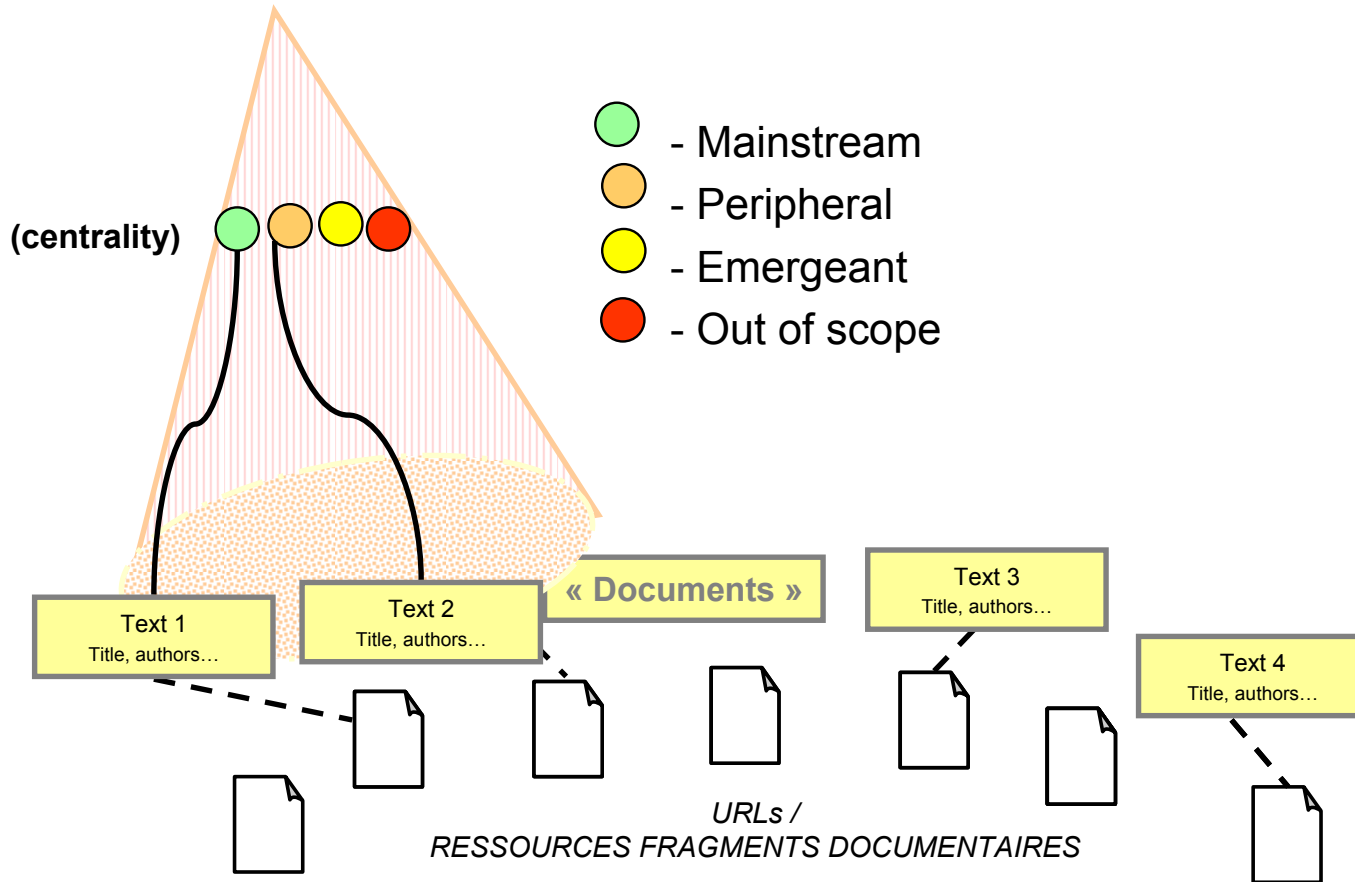


2) agreement in the group on documents considered

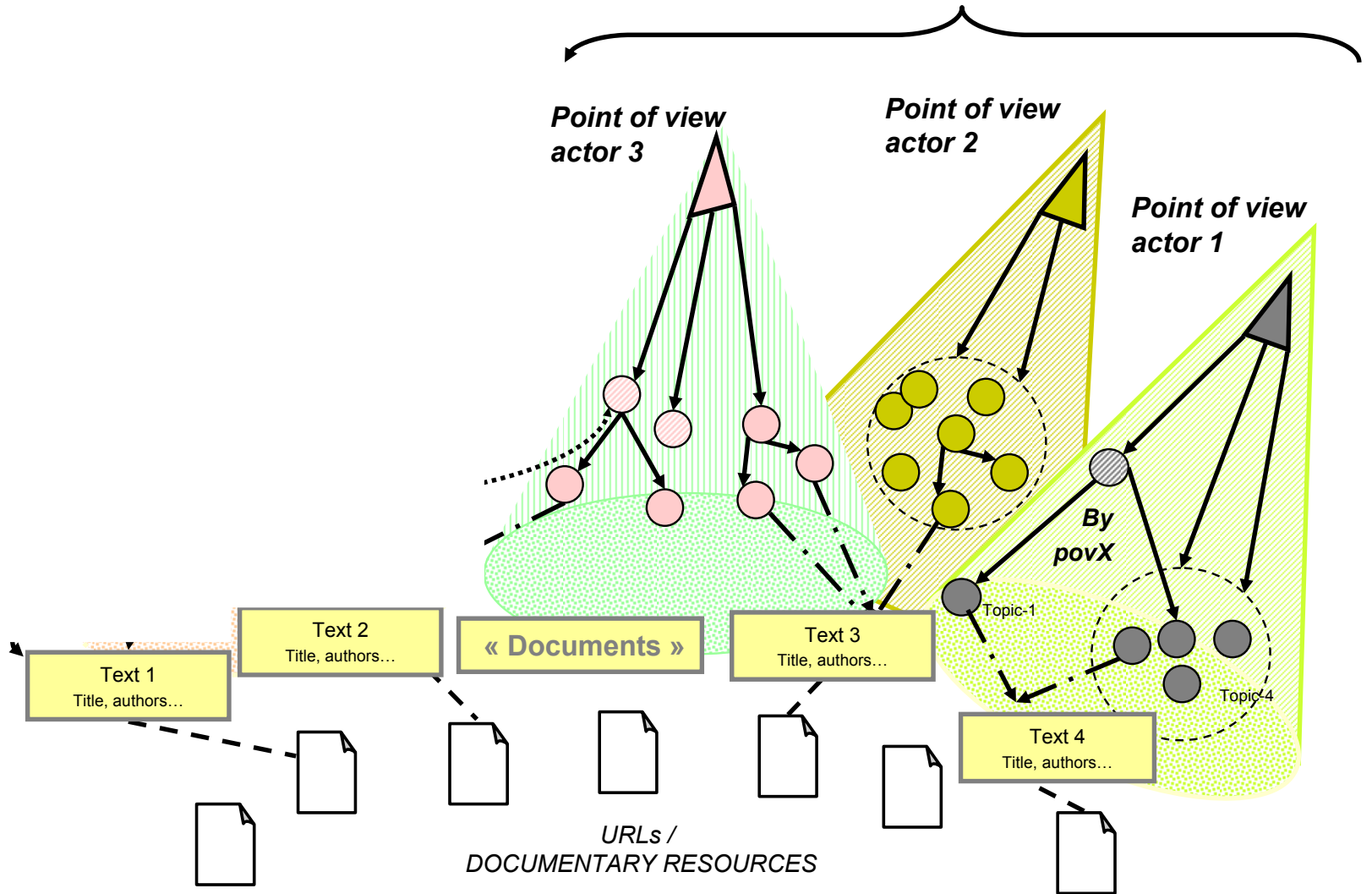
- *naming of each considered document*
- *standard attributes (author...)*



3) **But** possible conflicts within the group on the « centrality » of these considered documents

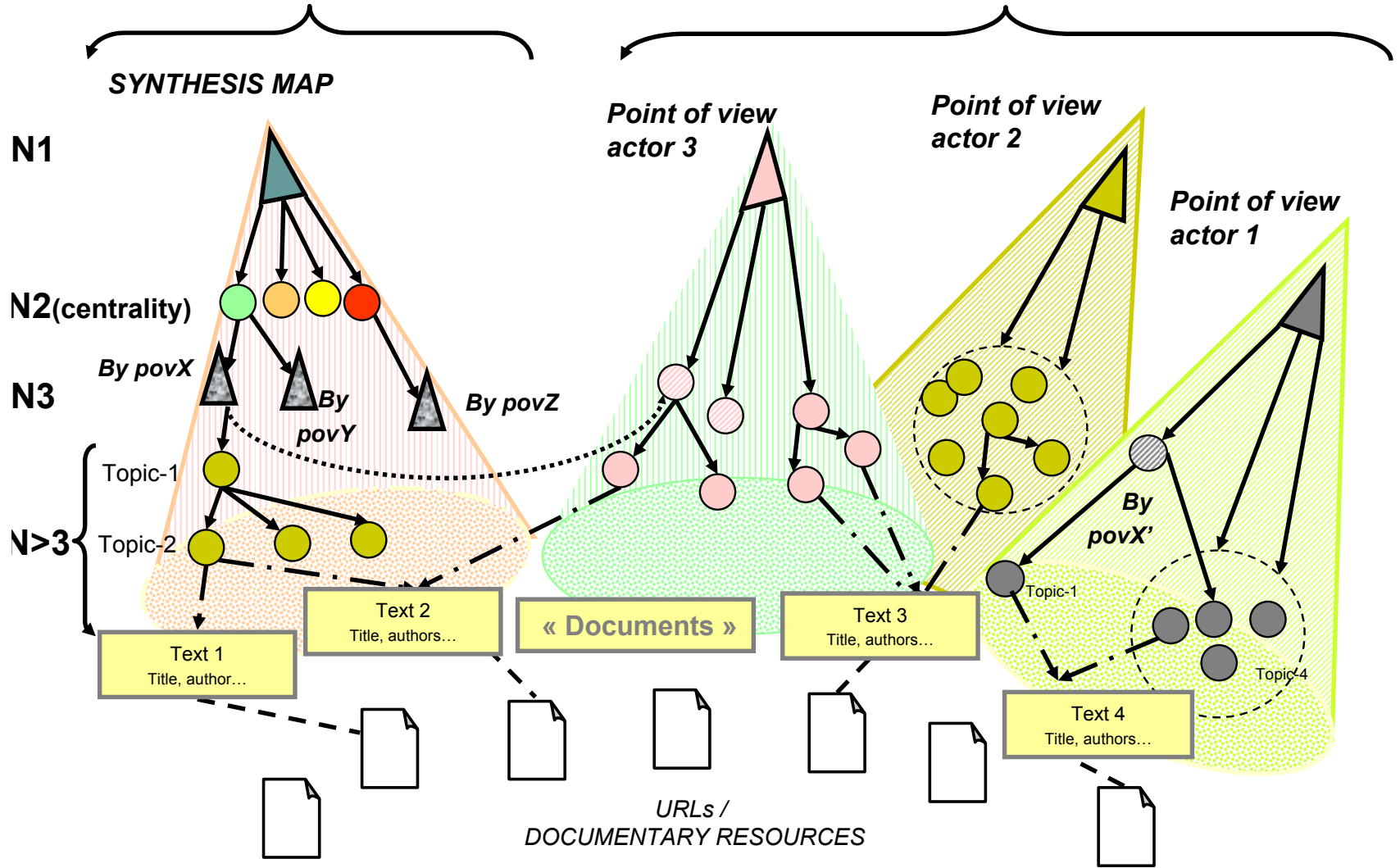


4) « design maps » from each actor

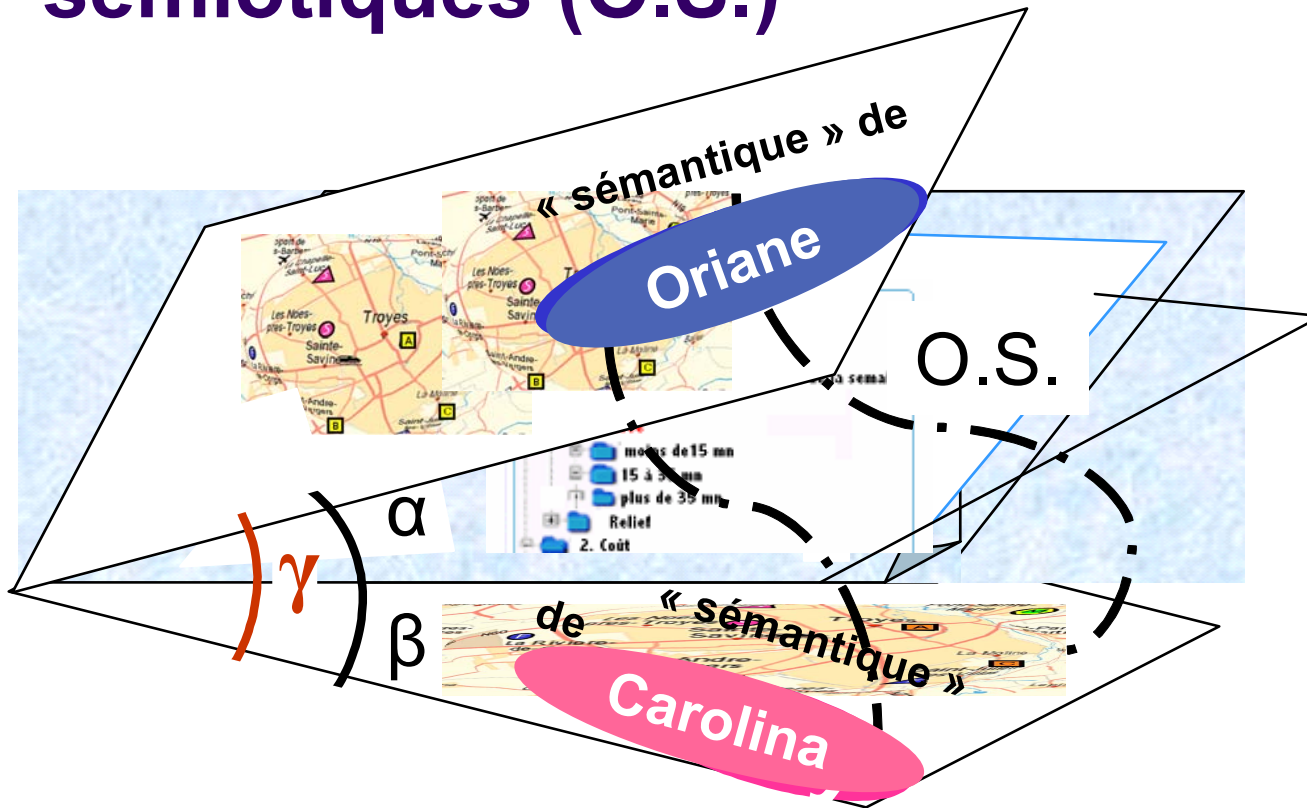


« synthesis map » ↔

n « design maps »



La co-construction conflictuelle inhérente aux ontologies sémiotiques (O.S.)



Démo

<http://tech-web-n2.utt.fr/dkn/front/>

3. Réflexions / approfondissements actuels

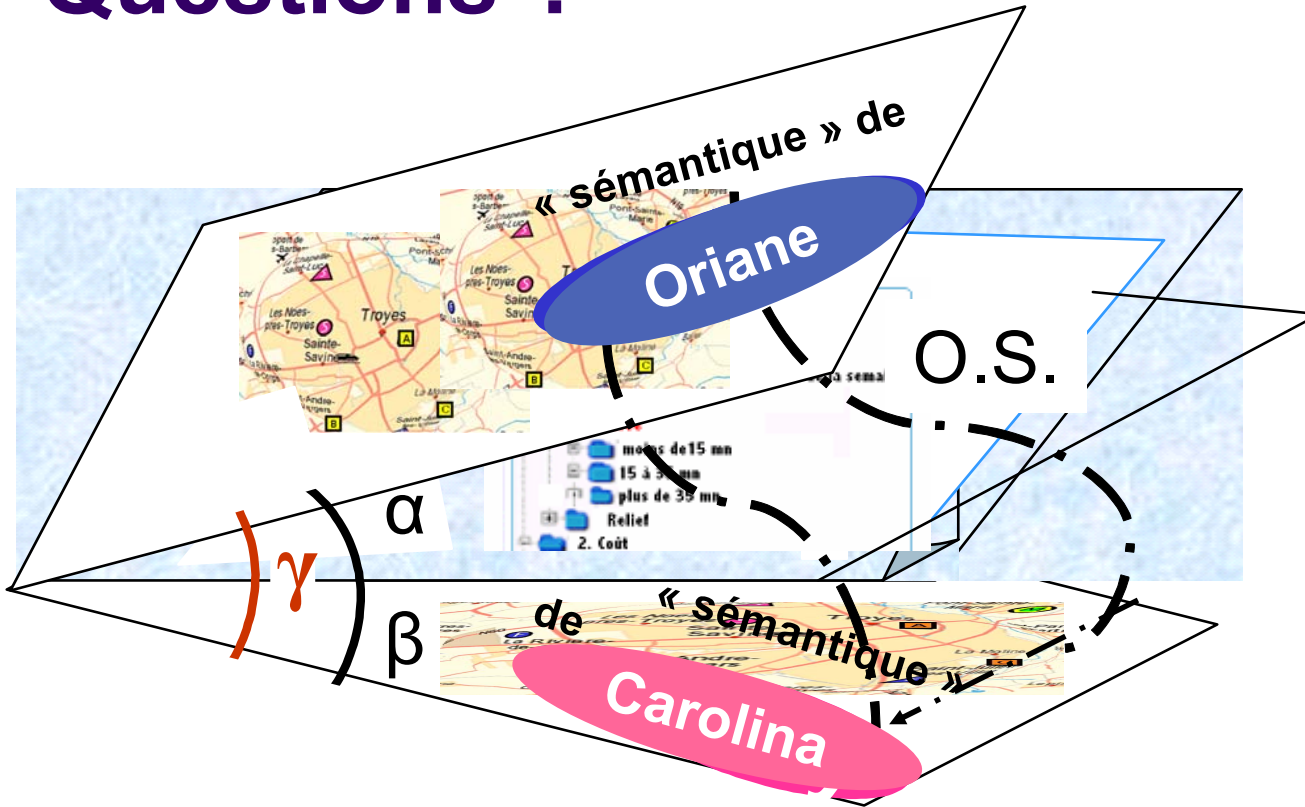
→ *améliorer la facilitation et la méthodologie: étude de l'introduction complémentaire d'un langage « socio-technique » (SeeMe de Thomas Herrmann)*

→ *possibilité pour les acteurs de pondérer les items et les thèmes d'un carte*

Perspective: possibilité pour les acteurs de pondérer manuellement les items et les thèmes d'un carte Hypertopic

- Utilisation de quantificateurs (***, points, miles...) en plus des possibilités de communication par annotations textuelles
- Dans l'activité socio-sémantique: Usage de ces quantificateurs pour l'aide à la co-construction conflictuelle (par exemple : comment se prononcer sur la carte de l'autre)
- Mais aussi ouverture vers de nouveaux usages des ontologies sémiotique pour l'aide à la décision collective (rôle « attributeur »)
- Passerelle Hypertopic / Compendium ?

Questions ?



<http://tech-web-n2.utt.fr/dkn/front/index.php>
<http://www.dk-network.org/>
<http://cahier.tech-cico.fr/>

References

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