



THE NATIONAL CENTER FOR
BIOMEDICAL ONTOLOGY

Managing Multiple Ontologies

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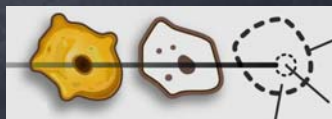
A Thousand Flowers Are Blooming!

- Ontologies are being developed by interested groups from every sector of academia, industry, and government
- Many of these ontologies have been proven to be extraordinarily useful to wide communities
- We finally have tools and representation languages that can enable us to create durable and maintainable ontologies with rich semantic content



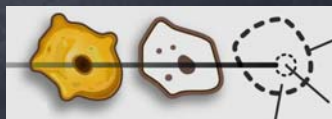
A Thousand Flowers Are Blooming!

- And that's a good thing!
- There are infinite distinctions that you can make about the world
- The distinctions that matter are the ones that relate to the task to be performed



Tending The Garden

- The fewer ontologies are in use, the easier the information-integration task is
- However, in practice, there will always be multiple, sometimes incompatible, quality ontologies for the same domain
- Hence, we face the problem of managing multiple ontologies



Managing Multiple Ontologies

- Search
 - finding the right ontology for specific tasks
- Evaluation and ranking
 - selecting the “best” ontology
- Alignment (mapping)
 - finding related terms from different ontologies
- Versioning and evolution
 - handling ontology change



Some Research Challenges (from the CS point of view)

- Alignment and mapping
 - (semi-)automatic tools for ontology alignment
 - mapping representation
- Search
 - query expansion
- Ranking
 - computable quality metrics
 - peer review



Research Challenges (II)

- Collaborative ontology development
 - Annotations (marginalia)
 - Discussions, disagreements, alternatives
 - Multiple views
 - User-friendly development tools
- Infrastructure
 - robust, scalable modern architectures
- Many more...

