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# **Integration of Knowledge Organization Systems into Digital Library Architectures**

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## **Reconceptualizing Classification Research**

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1. Need to recognize KOS as a class of objects in a DL model for which KOS services can be built and integrated into DL architectures
2. The KOS class includes systems that provide semantics, navigation, and translation through **labels, definitions, typing, and relationships** for **concepts**
3. Reconceptualizing KOS as a DL class leads to research & development issues and opportunities for both DL and CR

KOS = Knowledge Organization System

DL = Digital Library

CR = Classification Research

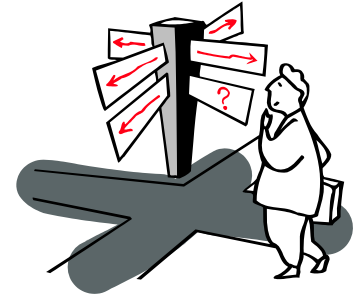


# Digital Library Components

**Libraries  
Collections**

**DATA STORE  
OF  
OBJECTS**

**CATALOG  
OF  
METADATA**



## **SERVICES**

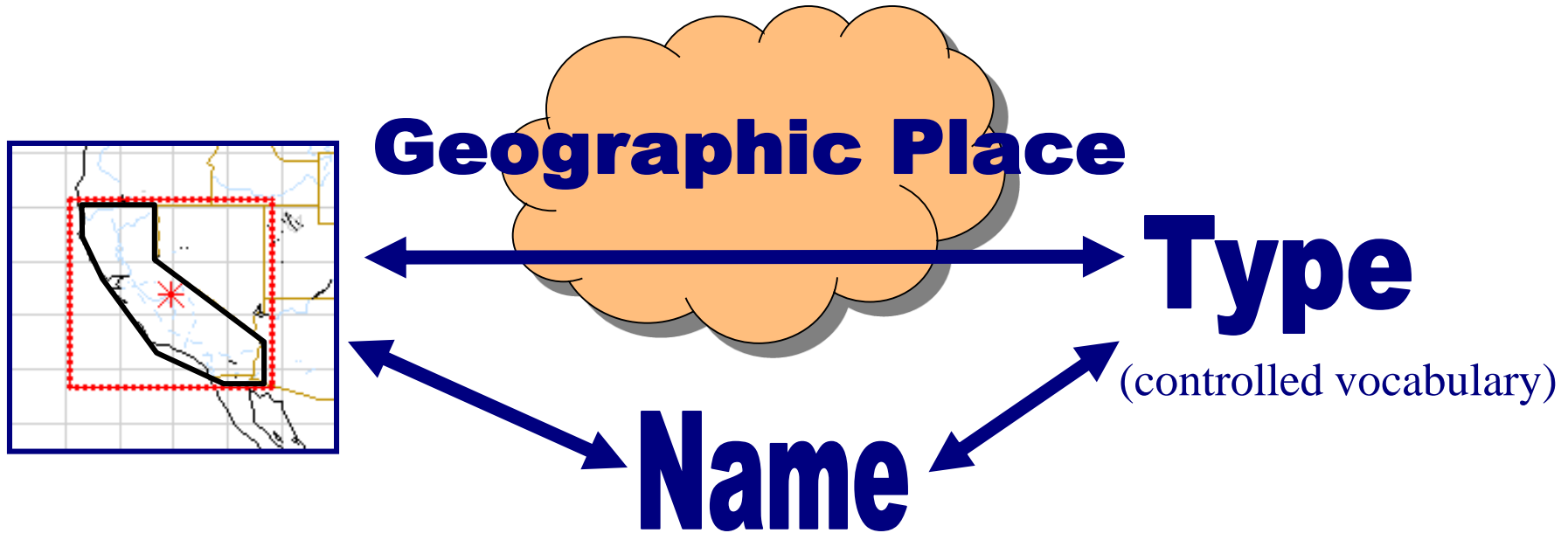
ACCESSING  
ANALYZING  
ARCHIVING  
CATALOGING  
DIGITIZING  
RETRIEVING  
SEARCHING  
VISUALIZING

## **KNOWLEDGE ORGANIZATION SYSTEMS**

AUTHORITY FILES  
CLASSIFICATION SYSTEMS  
CONCEPT SPACES  
DICTIONARIES  
GAZETTEERS  
GLOSSARIES  
ONTOLOGIES  
SUBJECT HEADING SETS  
THESAURI



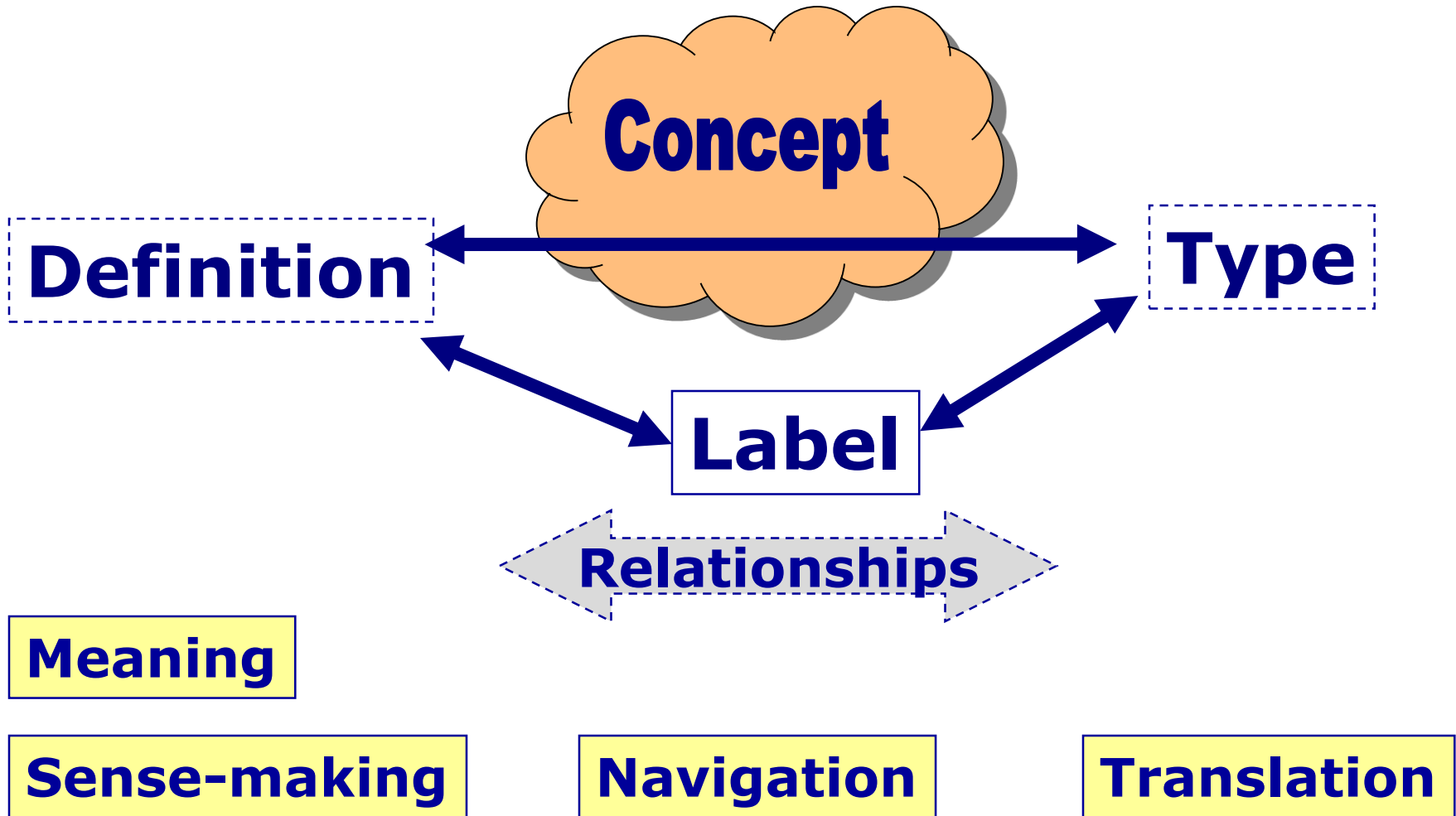
# Digital Gazetteer Essentials



- None of these elements are unique identifiers of a particular place

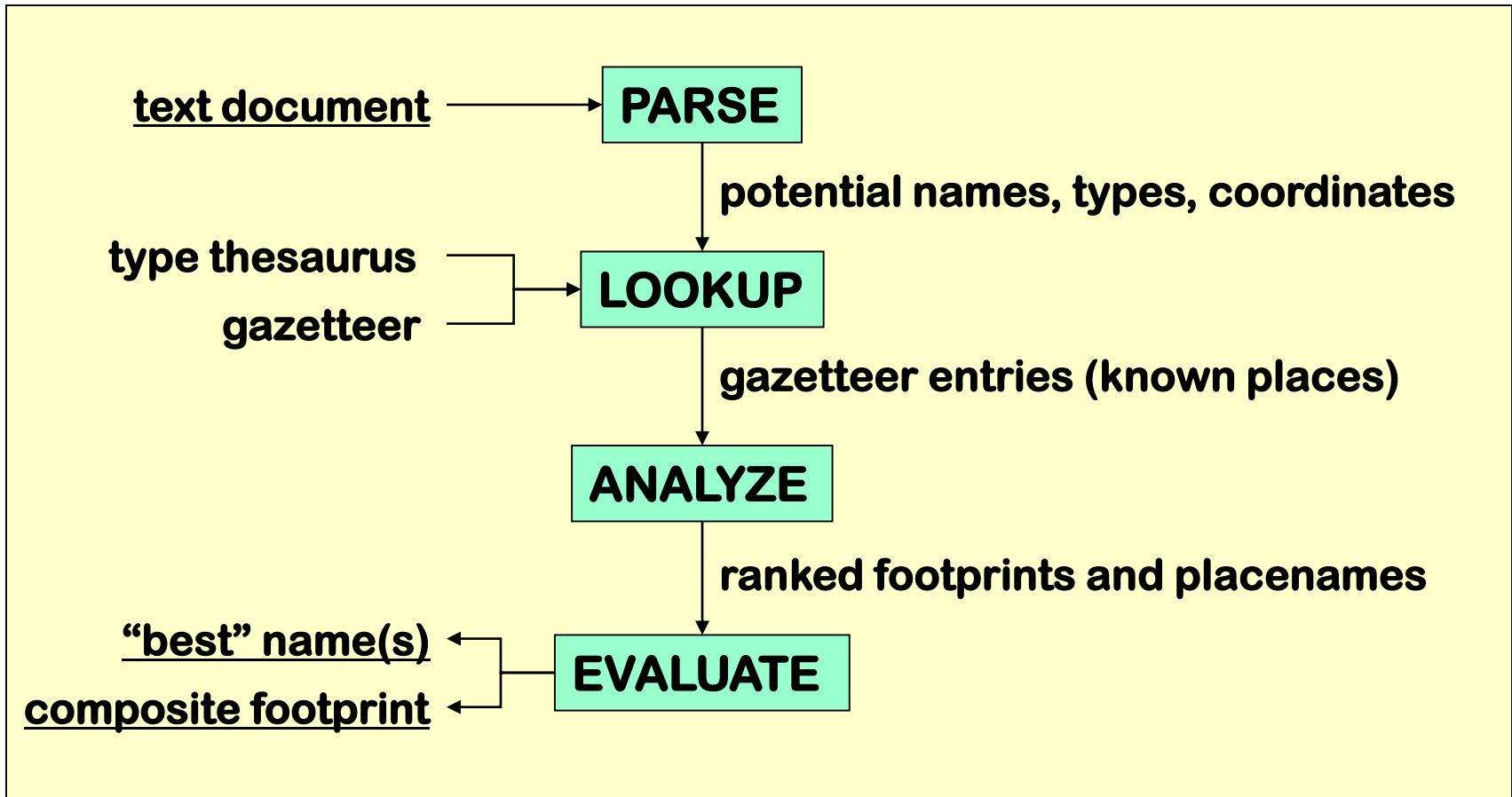


# KOS Generalization





# Textual Geospatial Integration Service





# KOS Services

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Service	Protocol	Target
Placename lookup	Gazetteer service	Gazetteer
Feature type lookup	Thesaurus service	Thesaurus
Definition lookup	Definition service	Dictionary/Glossary



# Research Implications - KOS

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- Taxonomy of KOS
- Registries of KOS
  - KOS metadata schema
- Harmonization of KOS types
- Core set of KOS relationship types
- XML/RDF/... standard representations of KOS





## **Research Implications - DL**

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- Basic KOS service protocol from which others can be developed
- Robust linking model for interactions between other DL entities (collections, objects, and services) and KOS
- Visualization tools for KOS semantics



# Availability

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## ASIS&T Online Bookstore

### Proceedings of the 12th ASIST SIG/CR Classification Research Workshop

*Clare Beghtol, Jonathan Furner,  
Barbara Kwasnik, and Jens-Erik Mai,  
Chairs*

© 2002, 62 pages, softbound



## **Next SIG/CR Workshop**

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- **Long Beach, California  
October 18, 2003**
- **focus on automated methods that leverage research in classification schemes and procedures, including classification, clustering, and indexing**
- **Regular Papers and Project Notes**
- **August 31, 2003 – deadline for submitting papers**
- **September 15, 2003 – acceptance notification**



# ADL Thesaurus Protocol

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- This document describes an XML- and HTTP-based protocol for accessing *thesauri*: structured, controlled vocabularies of words and phrases that represent conceptual categories.
- The protocol is intended to allow programmatic clients to access and utilize existing thesauri, and thus the services offered by the protocol are oriented around querying thesauri and navigating within thesauri. The protocol does not support creation, maintenance, or sharing of thesauri, or mapping between thesauri.



# ADL Thesaurus Protocol

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- Protocol specification available
  - DTD
  - XML Schema
- Test forms available
- Local server code available
- All XML-HTTP based



## Next version modifications?

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1. We are interested in modifying the thesaurus protocol IF it has the potential to be used – to be useful
2. Current discussion/requests
  1. Add concept identifier
  2. Consider alternative to the set “preferred” term model
  3. Consider whether top-level facets need to be modeled differently than just a level of the hierarchy
  4. Sub-types of standard thesaurus relationships
  5. Add language attribute



# ADL Gazetteer Update

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- New gazetteer schema
- Relational database logical model
  - Lite
  - Full
- DB2 or Postgres implementation
- Conversion of existing database
- ESRI and ADL Gazetteer hooked up to Gazetteer Protocol