
Using Taxonomic Concepts: integrating taxonomic concept models

Jessie Kennedy

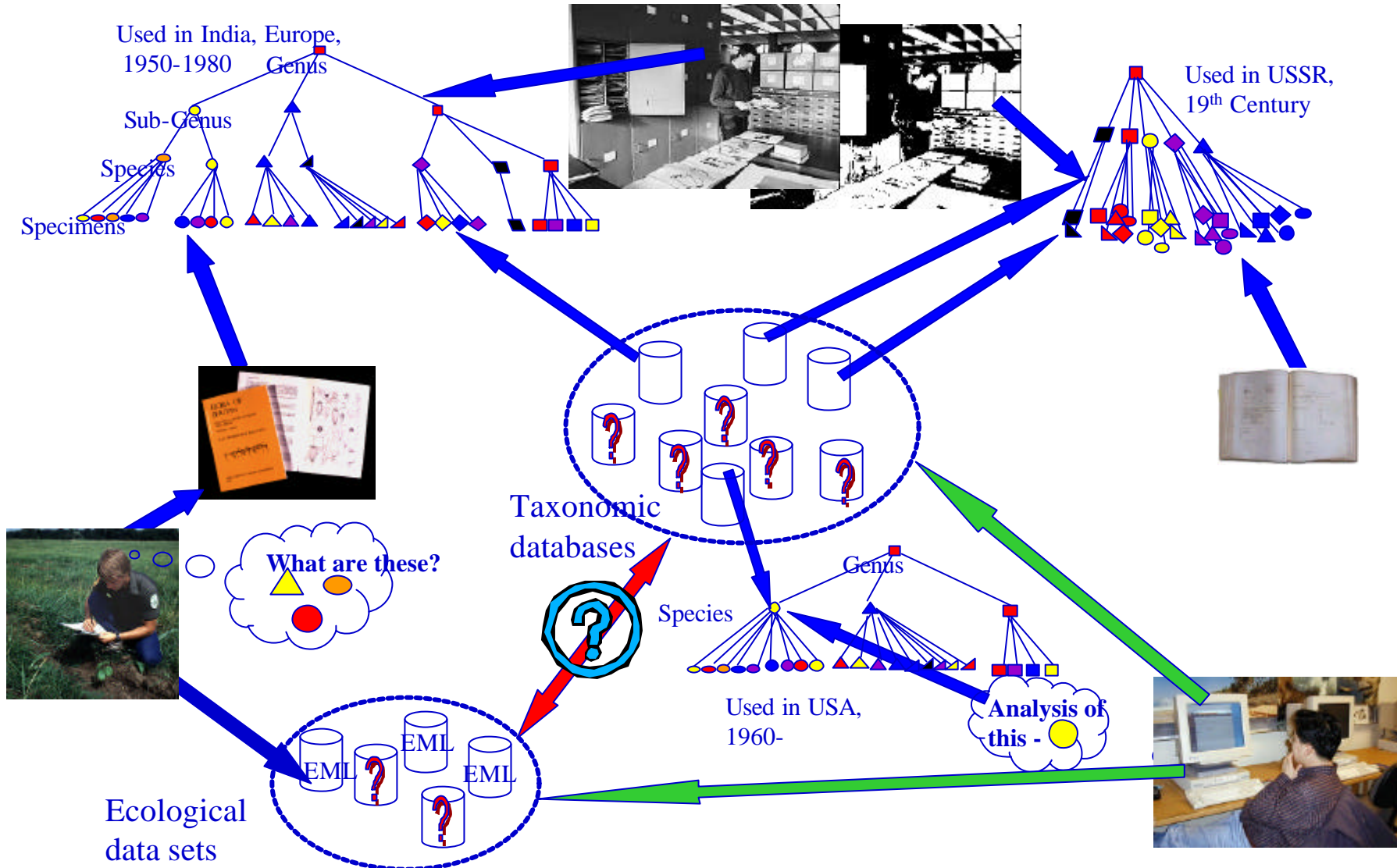
Napier University, Edinburgh

NSF - SEEK project; EPSRC/BBSRC - Prometheus projects

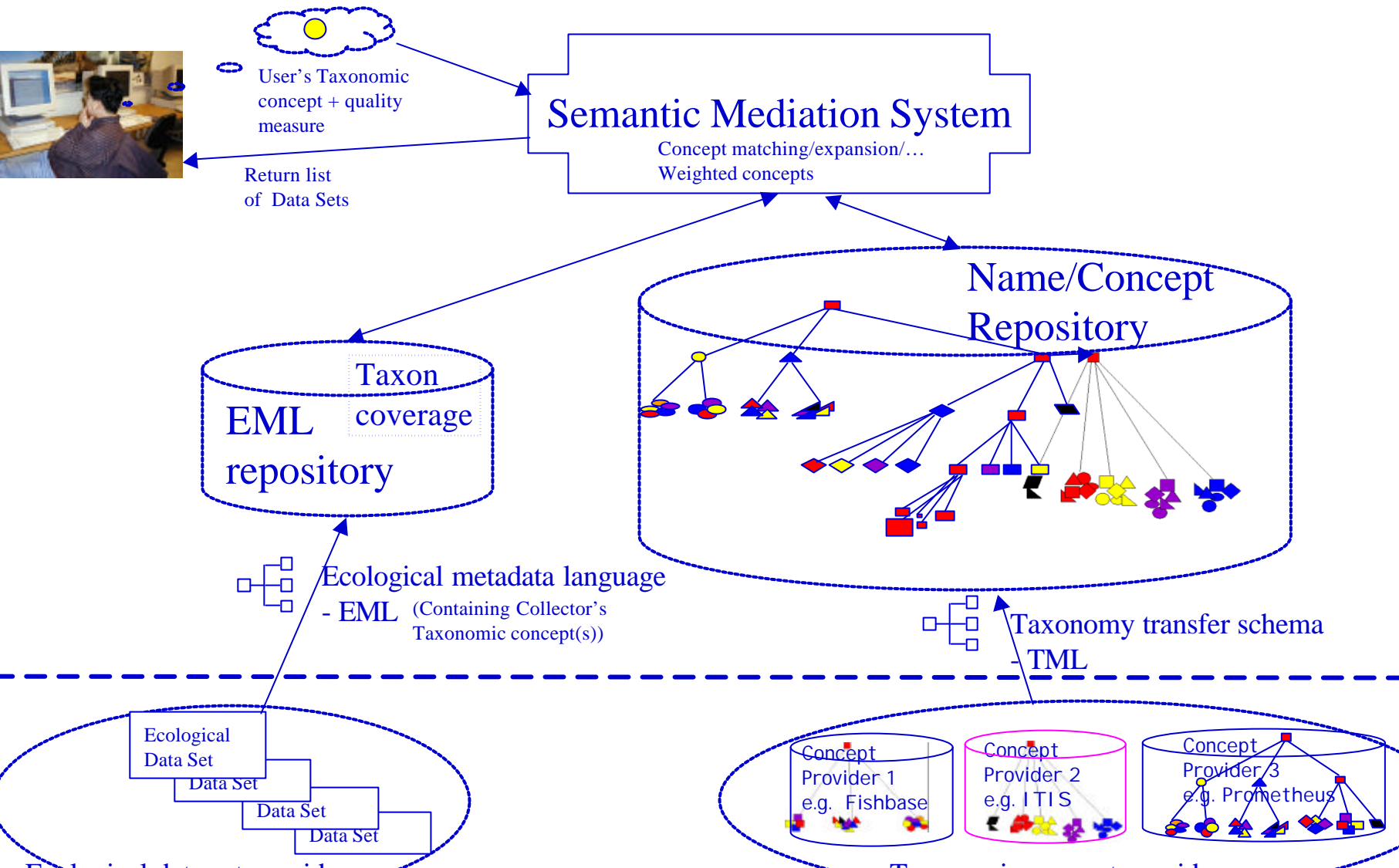
TDWG Names Sub-Group,
Lisbon

23rd October 2003

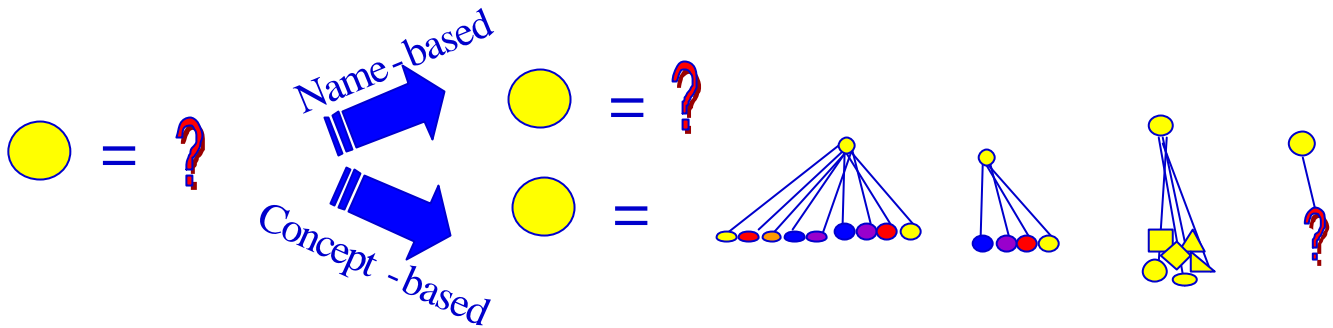
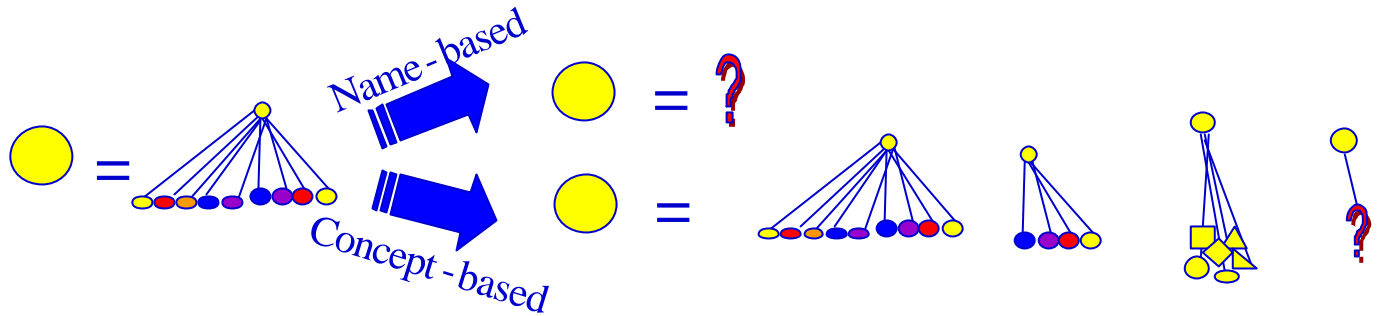
SEEK Taxonomy Scenario



SEEK High-Level Approach



Issues for SEEK

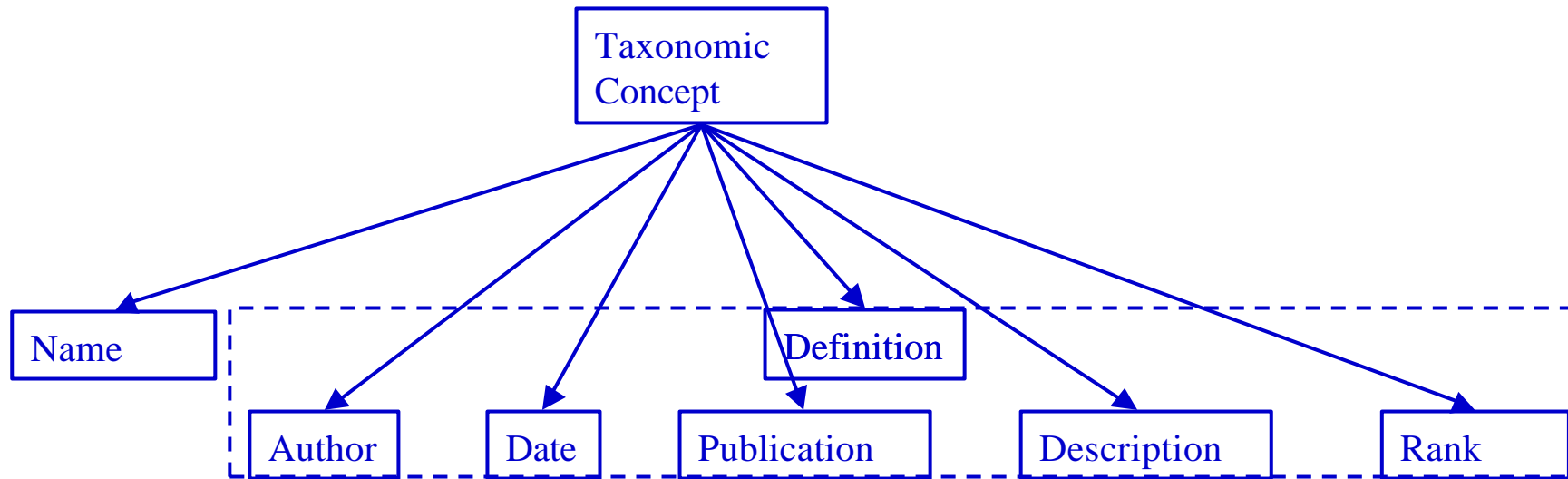


- Clear need for a concept based taxon model in SEEK
 - Ensure quality of data analysis
- Different approaches to concept-based taxa.....

Which way for SEEK?

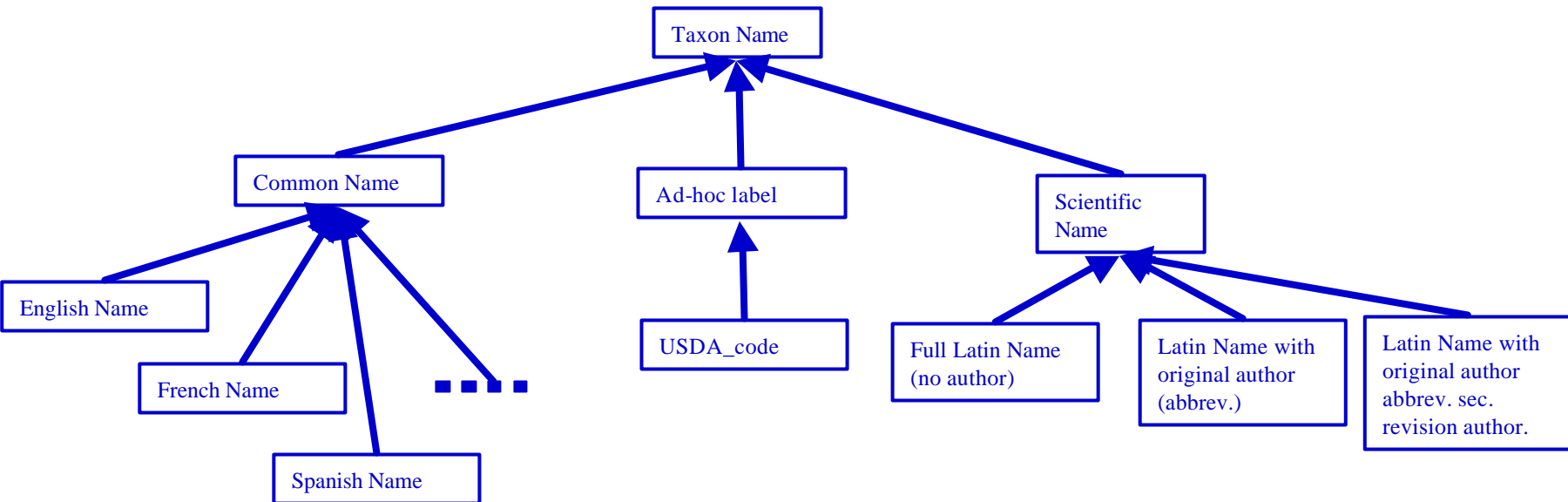
- Need a concept-based model of taxonomy for SEEK
 - Choose an existing concept-based model
 - Introduce yet another concept-based model
 - Develop a consensus concept-based model
 - inclusive of existing models and databases
 - focuses on similarities of existing taxonomic models
 - transfer schema to allow existing models to share information
- Build SEEK database to support consensus model
 - Define minimum concept definition for particular purposes
 - Define transfer schema details
 - Map existing taxonomic database schemas to transfer schema
- Define quality measures for retrieval
 - To ensure matching/expansion is undertaken with appropriate level of precision

Very Simple Concept-Based Model



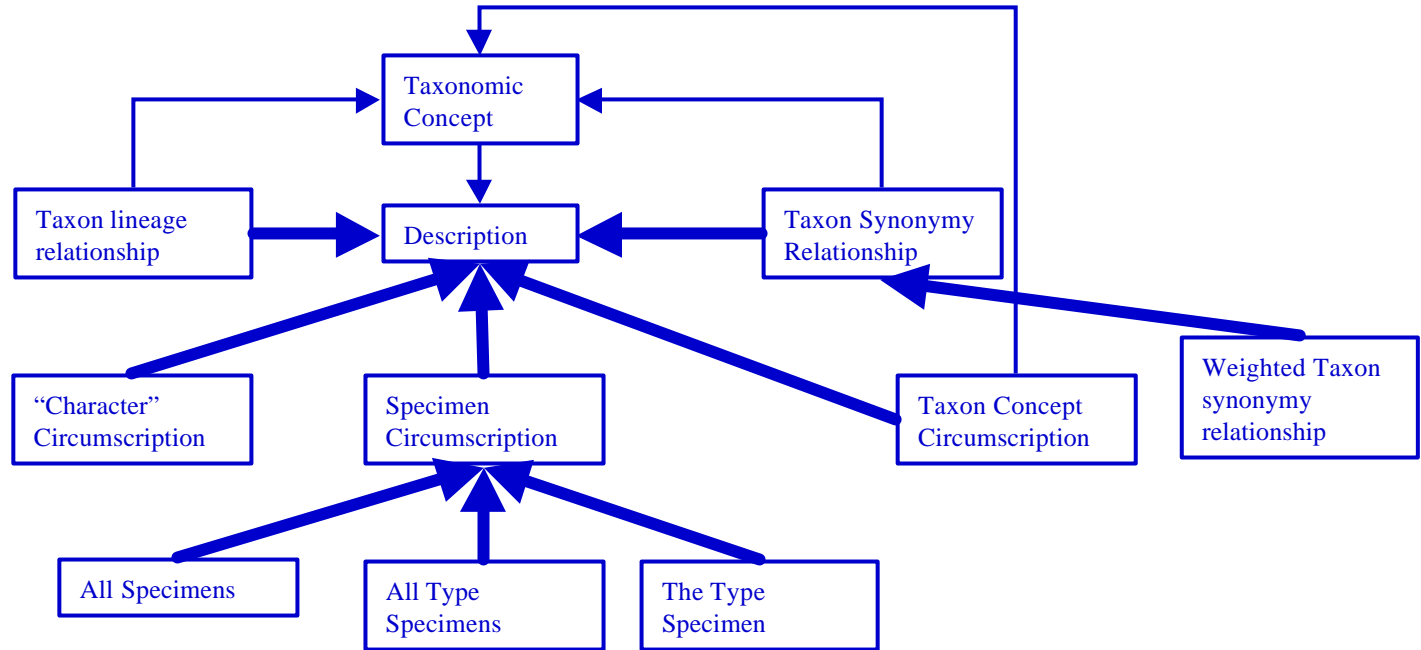
- Is this abstract model agreeable by most?
- It's not complete, nor detailed but could your model or understanding of taxonomy fit onto this as a starting point?
- Think about it further.....

Taxon Names



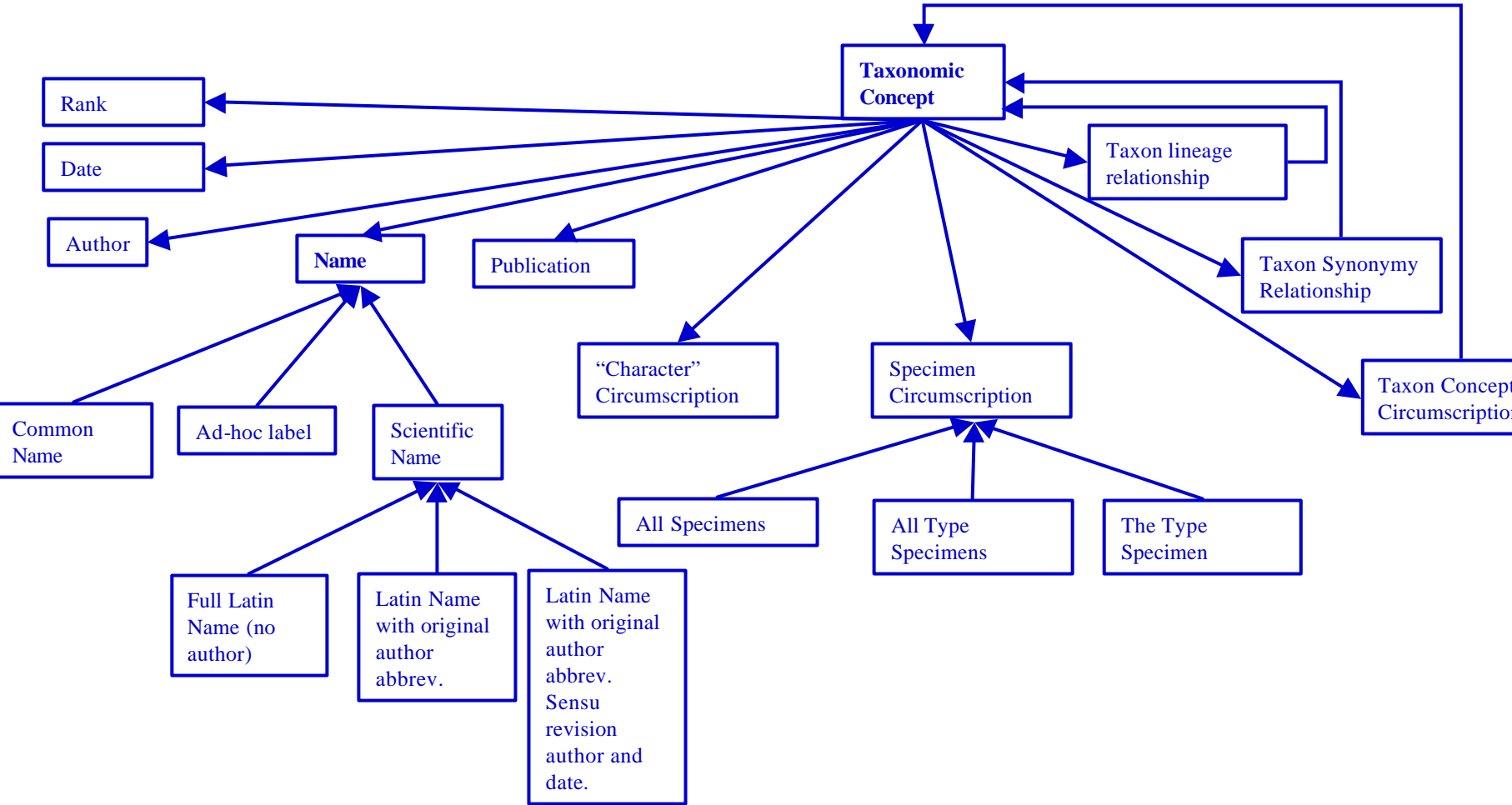
- Names are a means to communicate about concepts
- Some names better identify a concept than others
 - Daisy / *B. perennis* / *Bellis perennis* / *Bellis perennis* L. / *Bellis perennis* L. sec. Tutin
- The more uniquely names identify concepts the better the quality of communication about concepts
- We don't have an ideal world and often poor names are recorded
 - Apply a quality weighting to different types of name

Concept Definition Descriptions

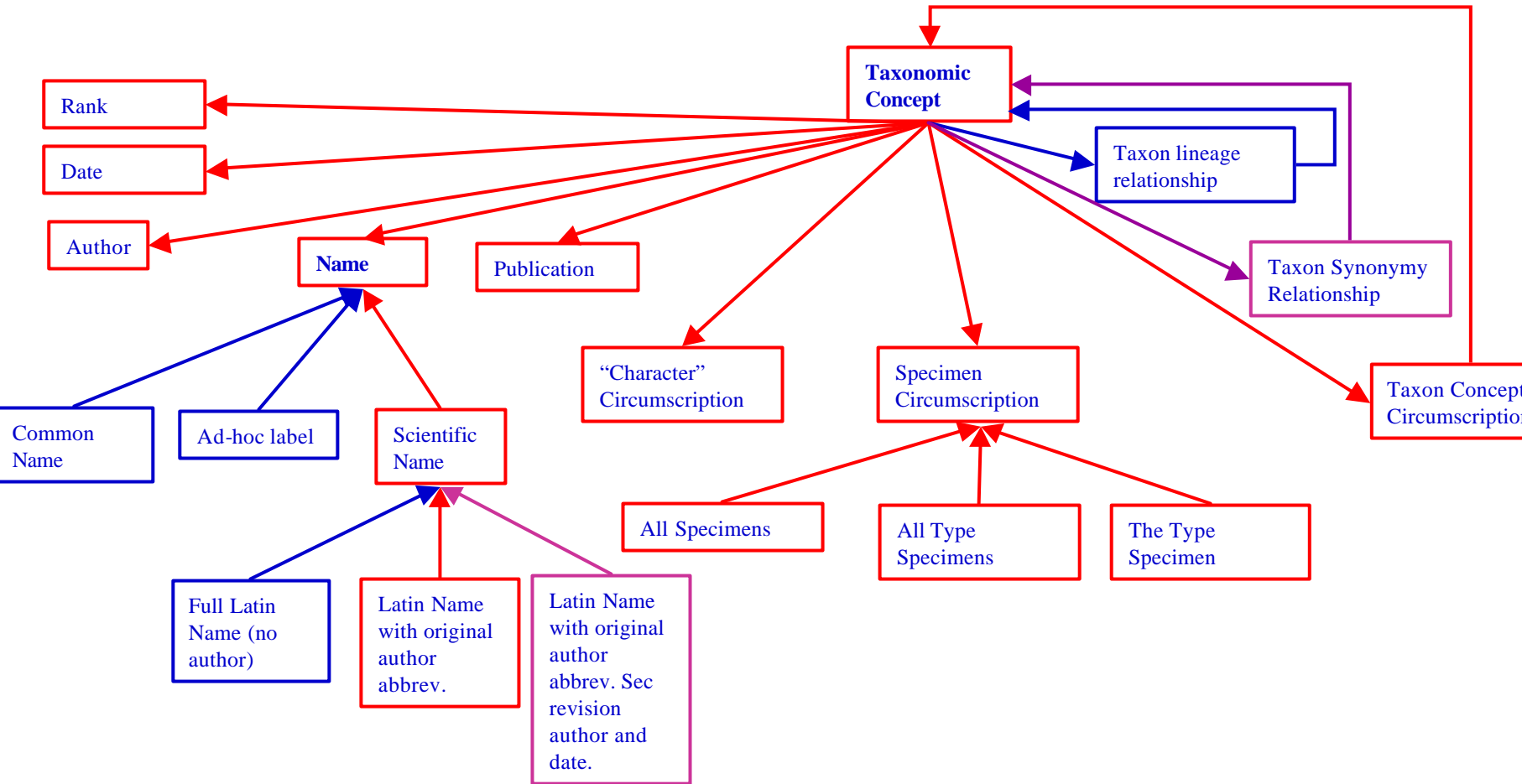


- The more of these types of definitions provided the better the understanding of the concept
- The easier it is to reason about similarity between the concepts

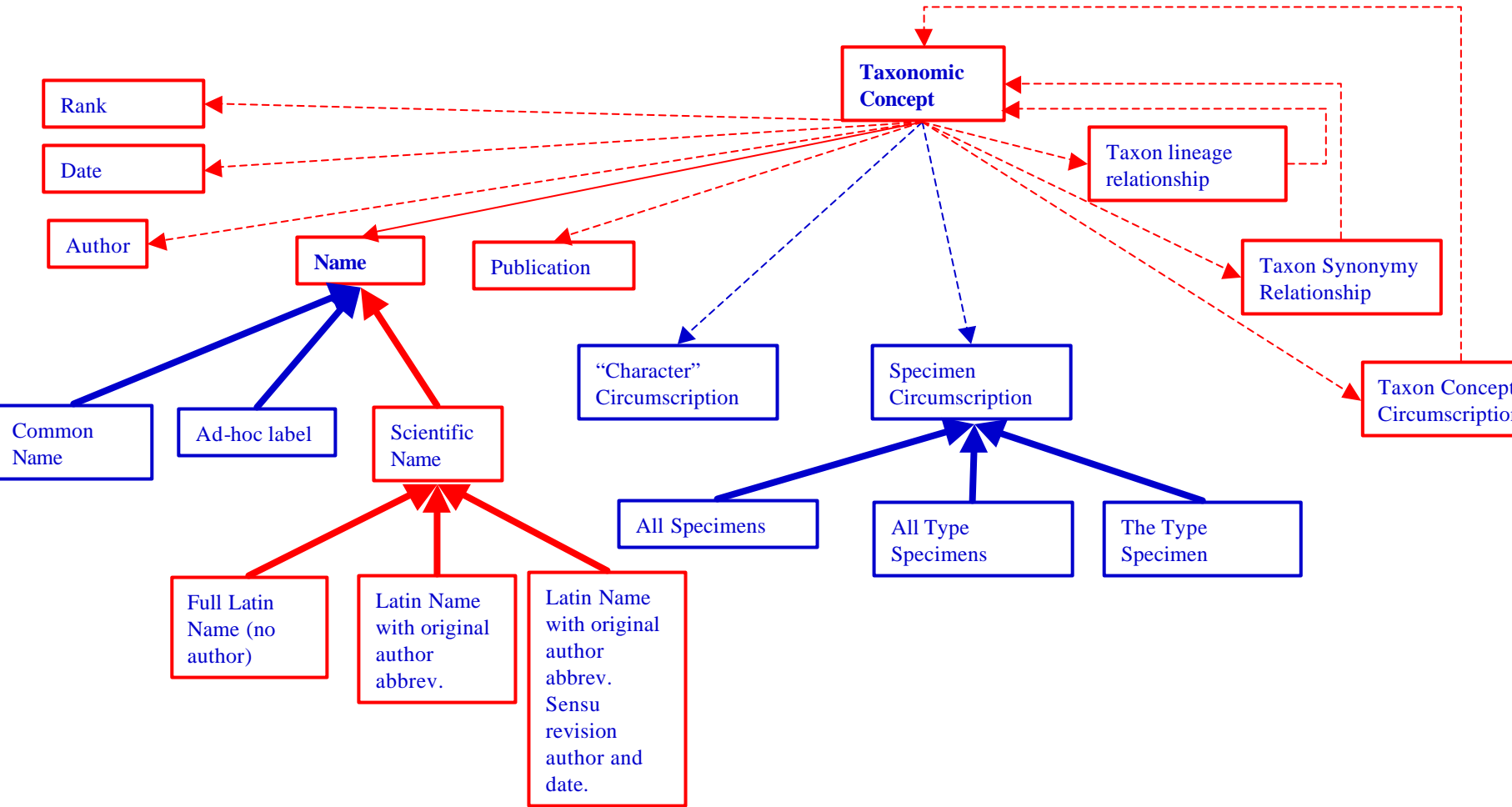
Abstract Taxonomic Concept Model



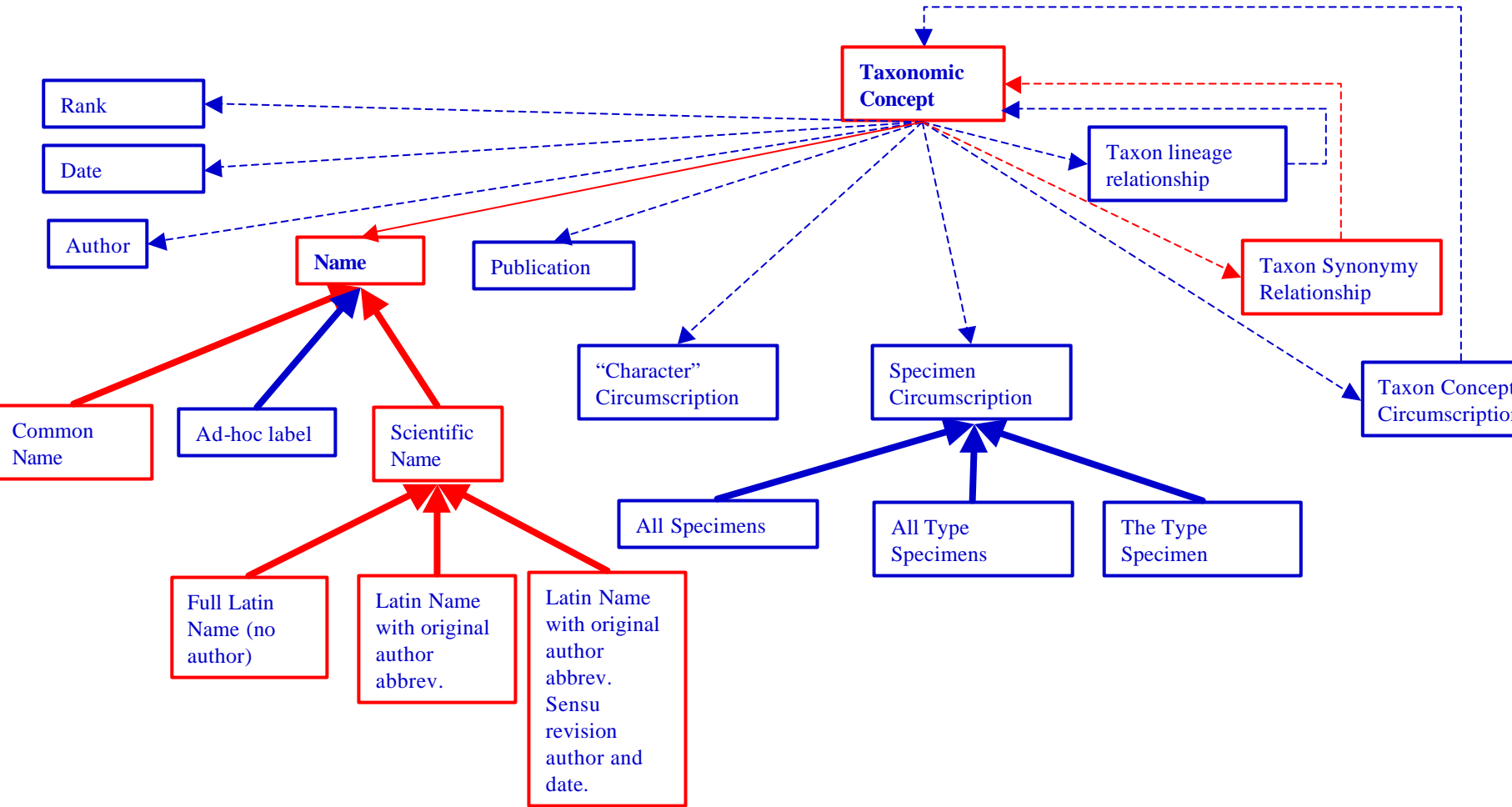
Prometheus



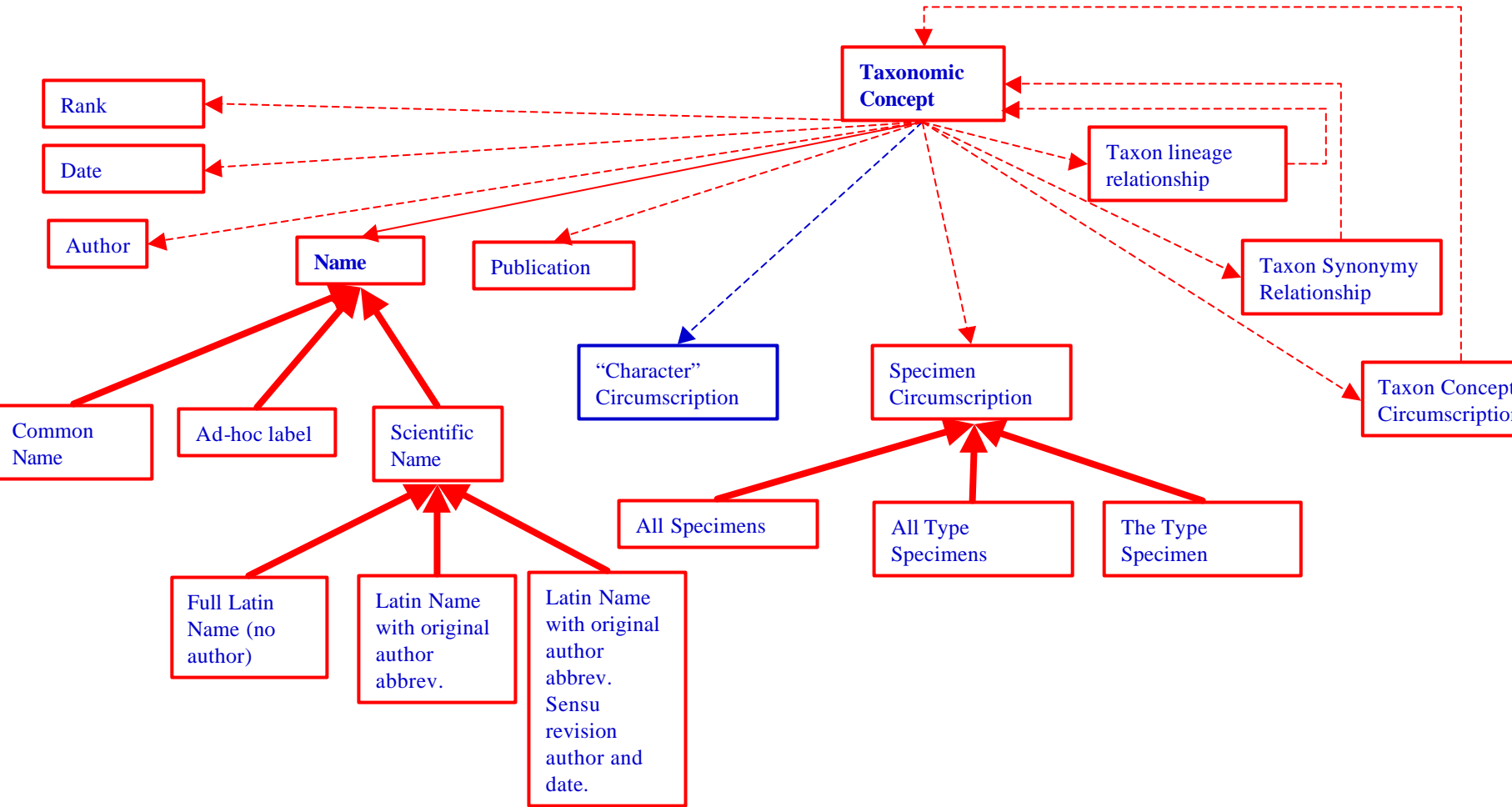
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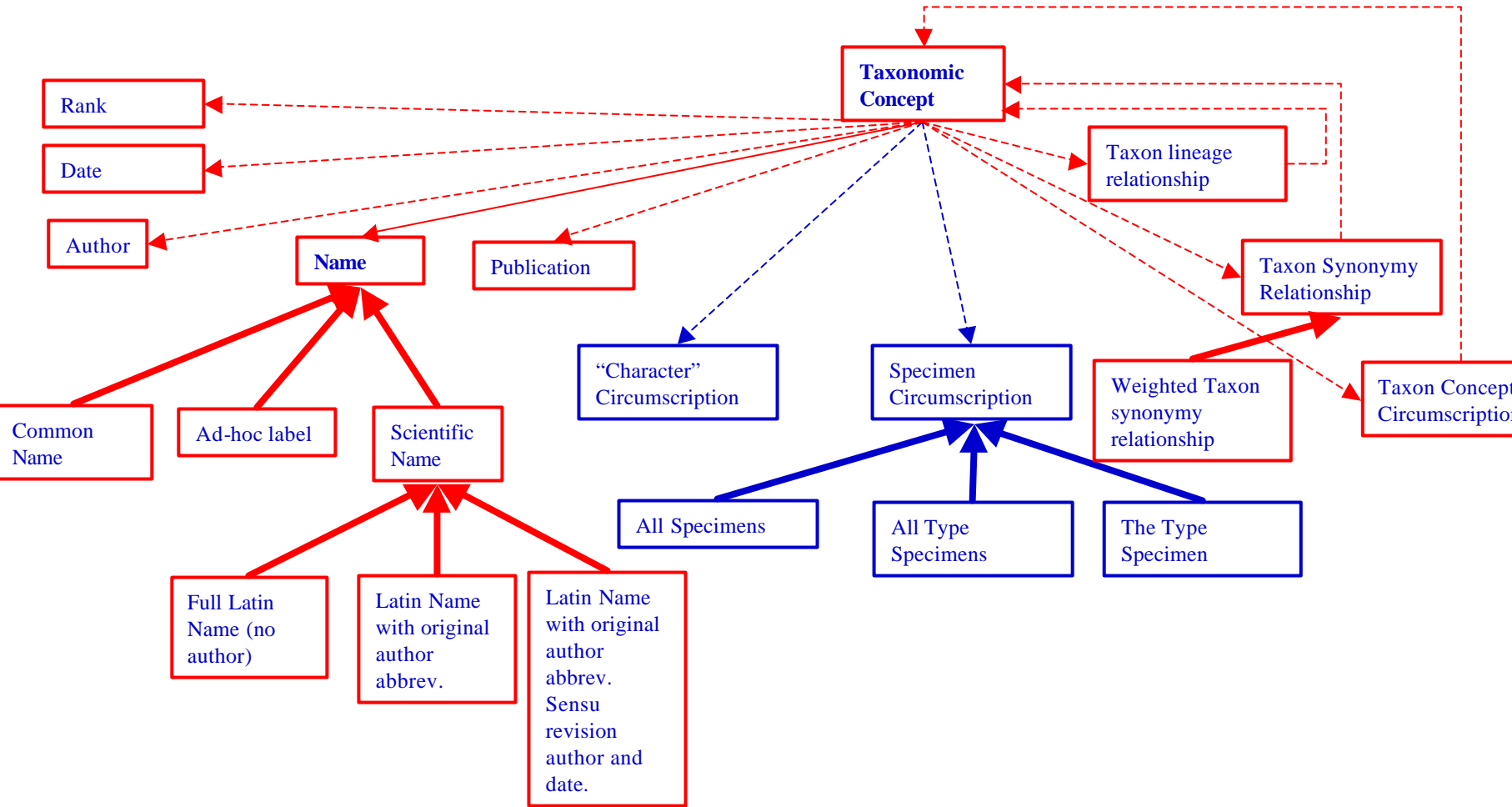
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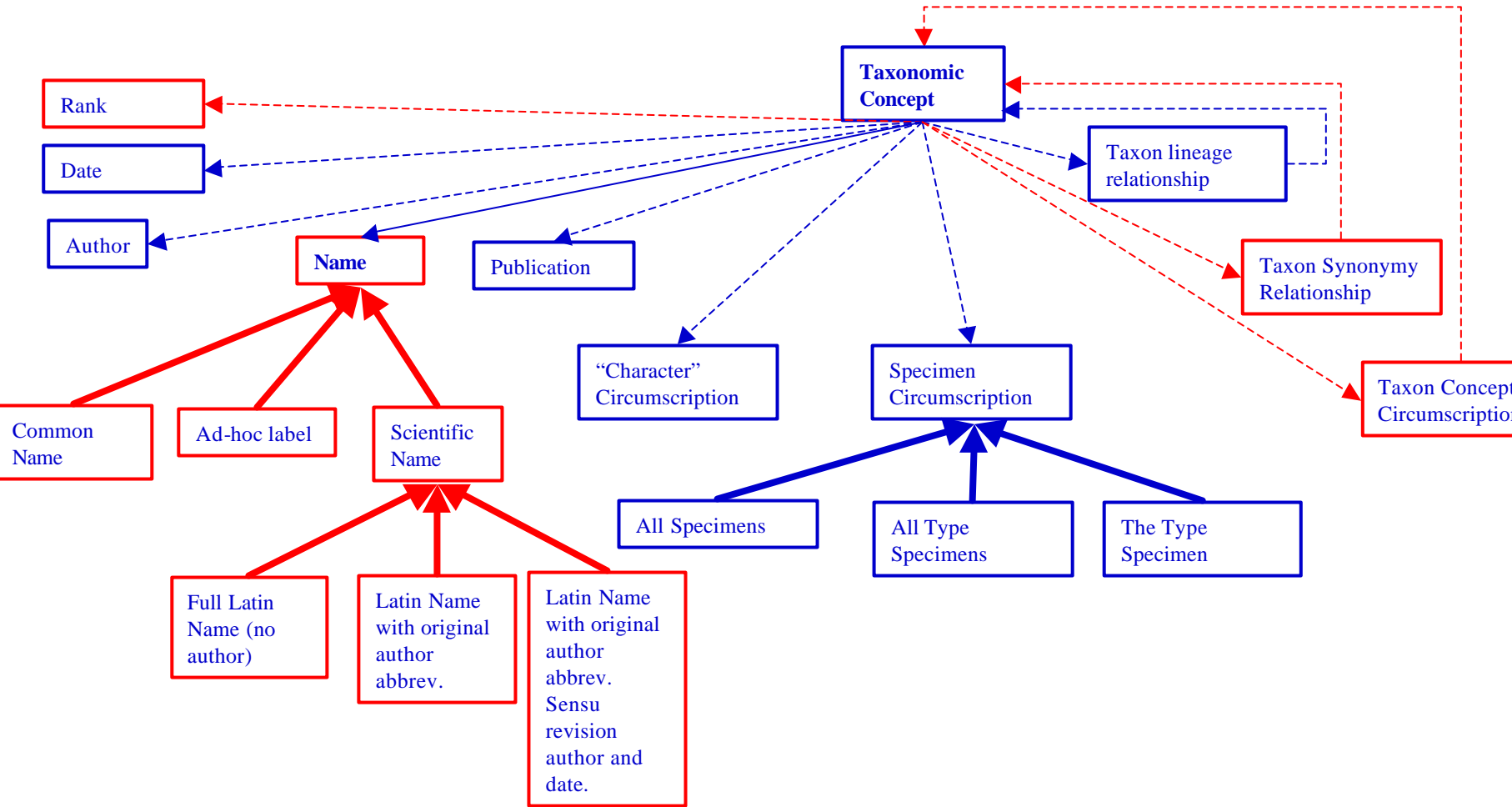
Nomenclator



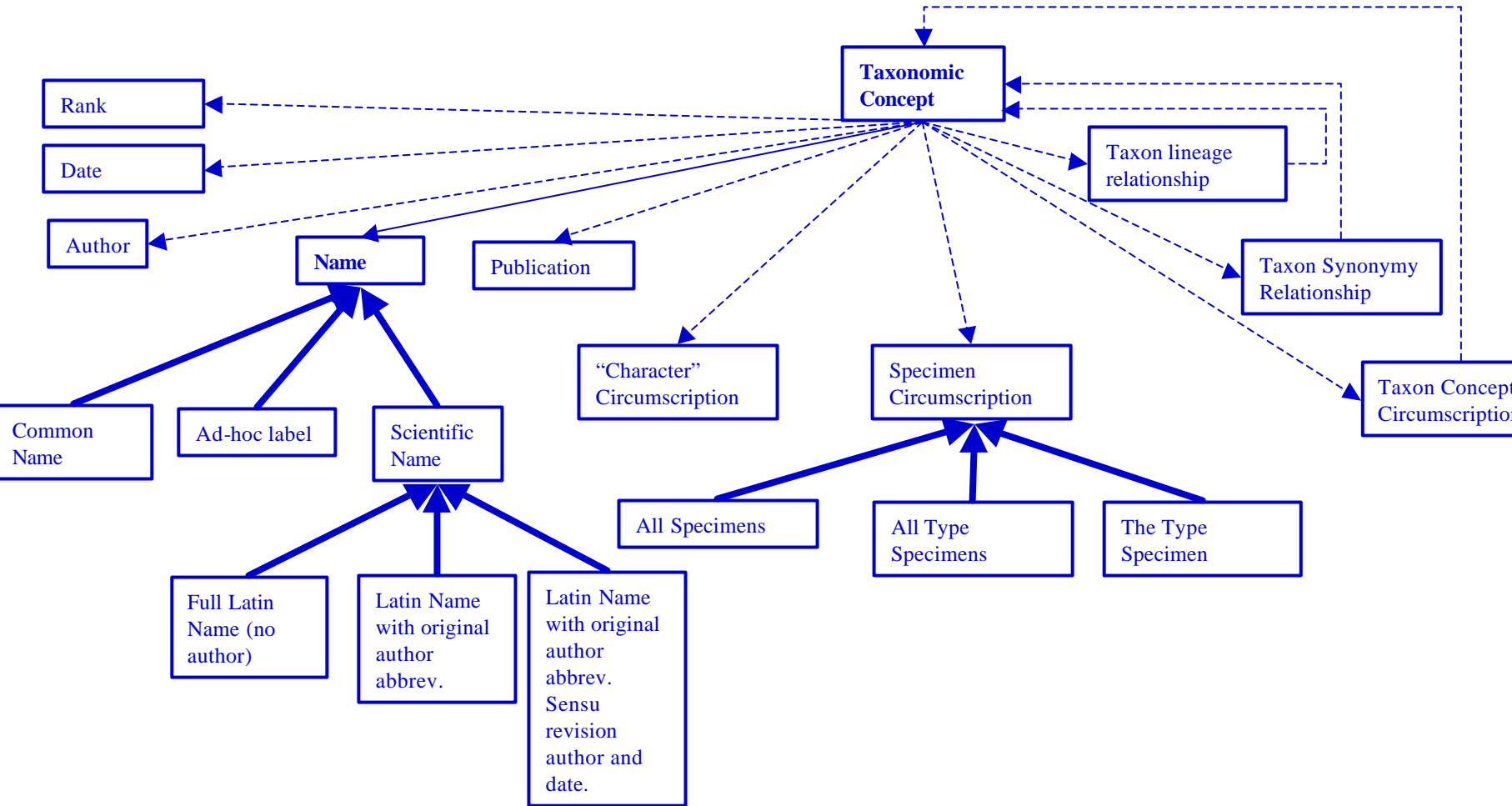
Vegbank



ITIS



GBIF



Status

- Experimenting with the model
 - To determine if it is possible to map from existing models to consensus model.
 - IT IS
 - Prometheus
 - Considering different architectures for implementing system.
 - Relational technology, XML, Web services
 - Ontological approach, OWL
- Need your help.....
 - Discuss the idea
 - Help define in more detail the transfer schema

What now?

- Is the model presented a basis for developing a consensus concept-based model
 - Discussion on how your model would fit in
 - Extend the model with appropriate fields
- Names subgroup
 - Formulate the fields for the Names part of the schema
 - to allow all kinds of names to be stored
 - to rate the quality of different types of names as identifiers of concepts
- Discussion.....