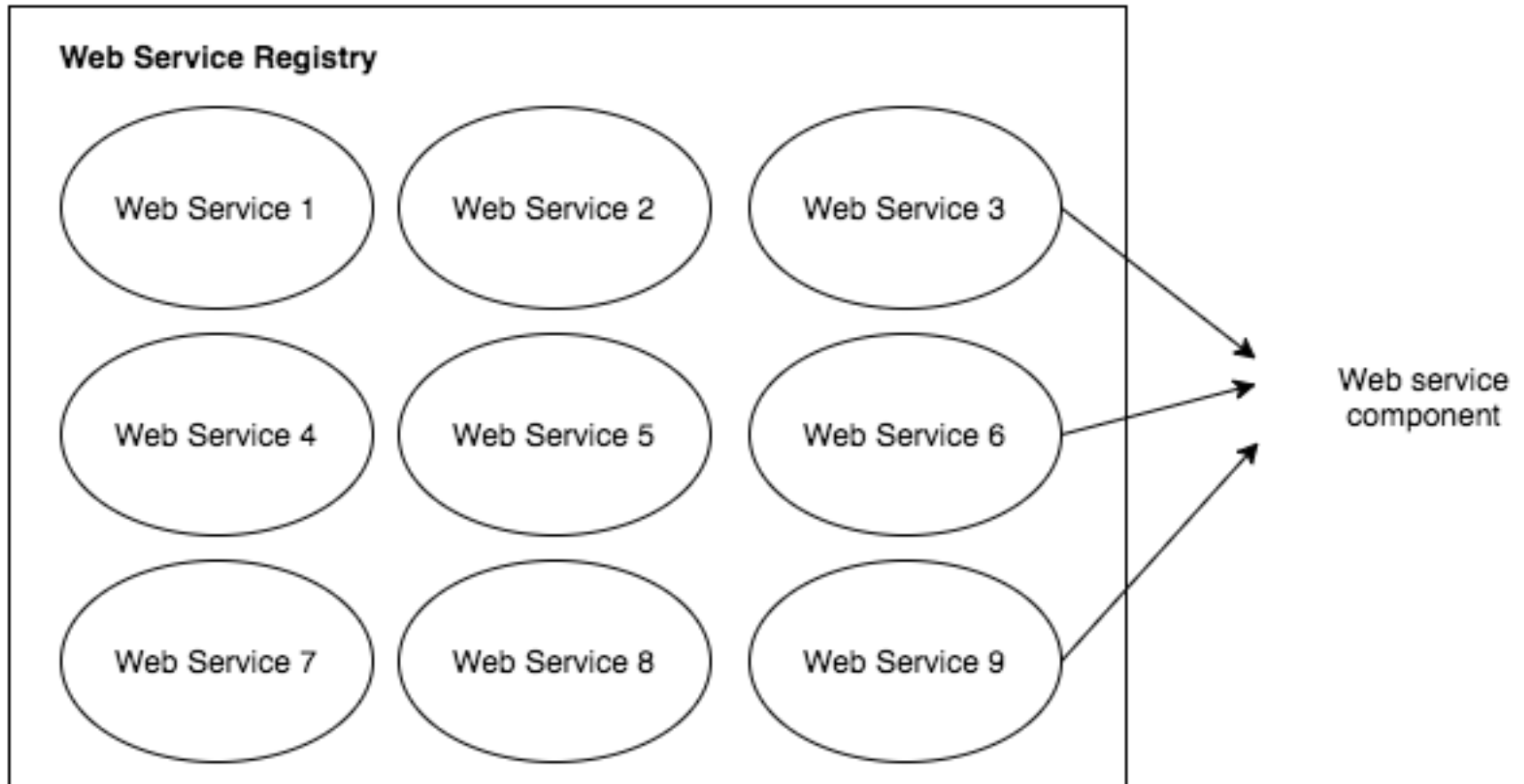# Web Service Composition framework and Ontology
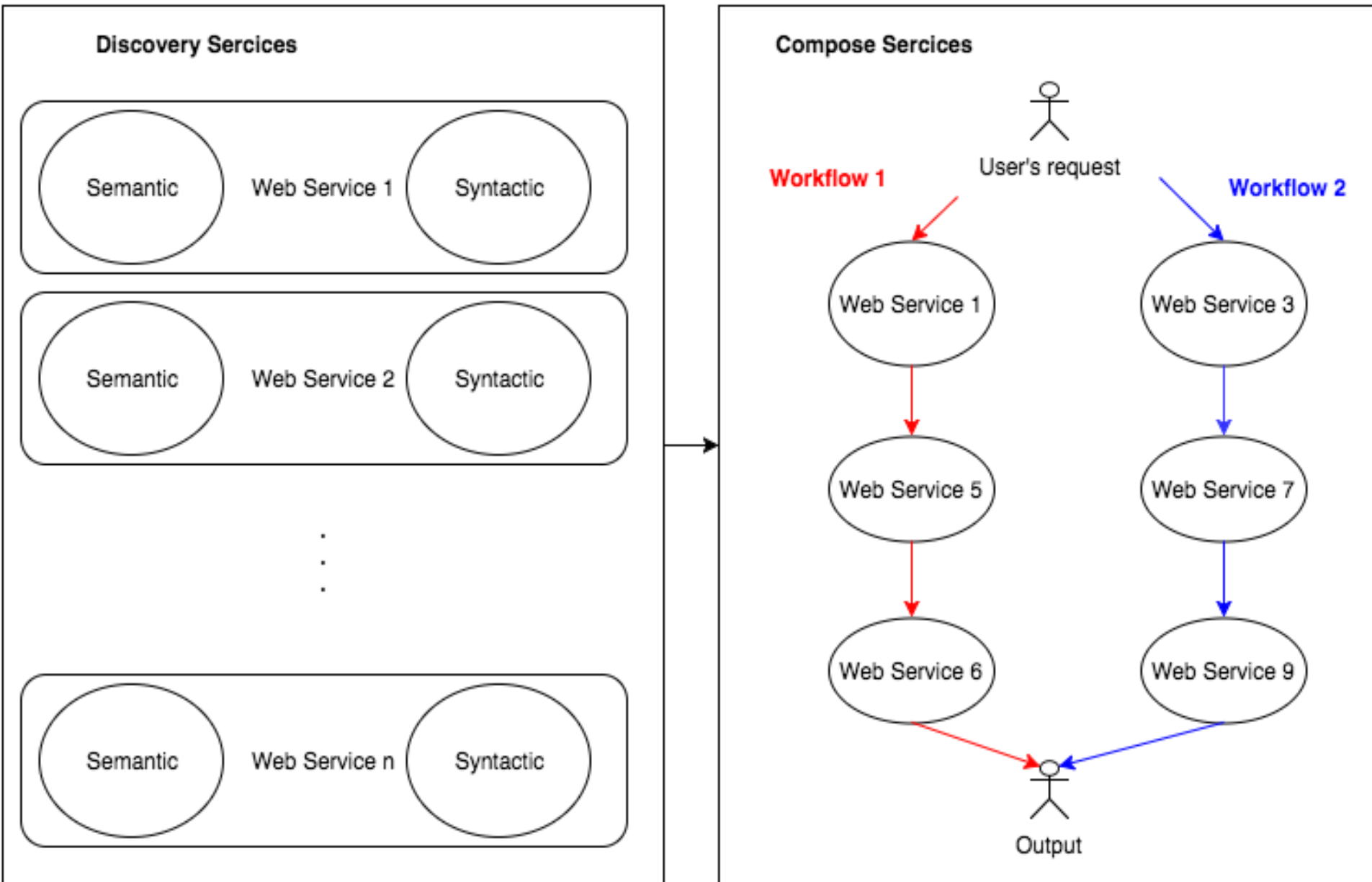
Content

- Introduction to Web Services Composition Framework

- Ontology (Definition and Role)

- Current Ontology Framework

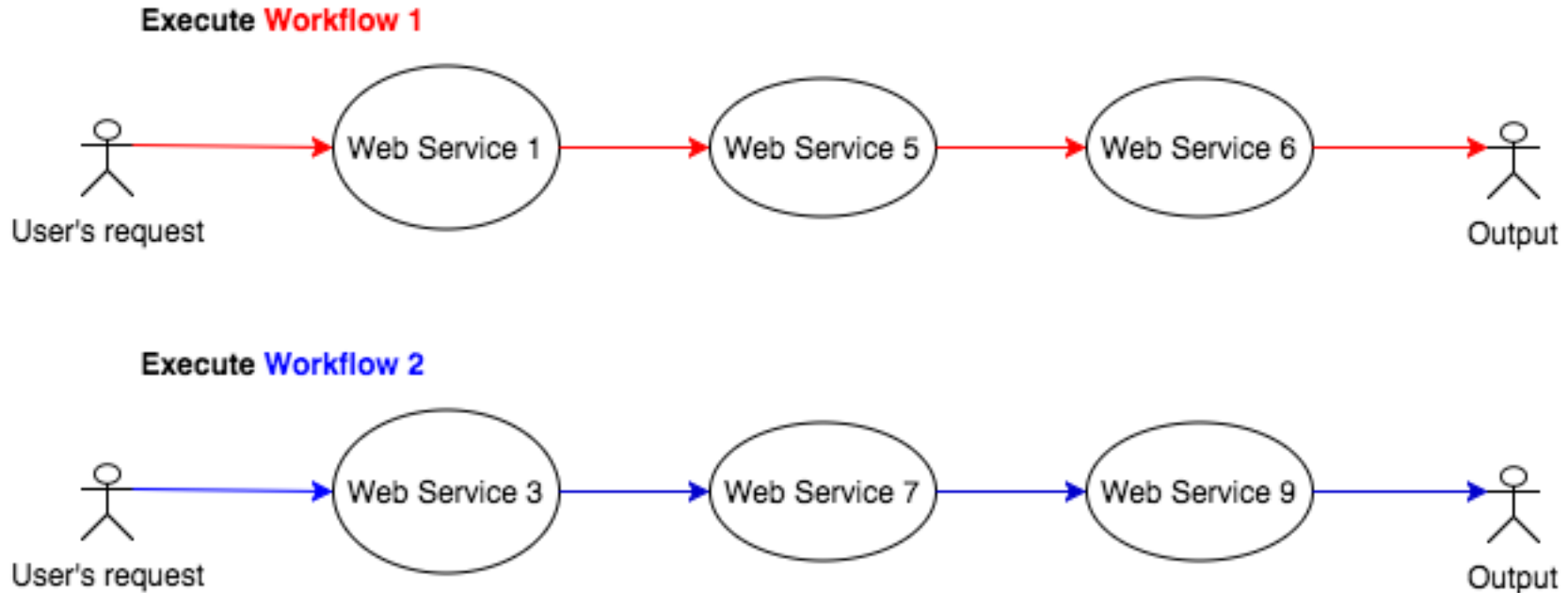- Future Work

Introduction to Web Services Composition

- Web Services Registry

- # Generate Workflow based on AI Planning

- # Execute Workflow

Execute Workflow 1

User's request → Web Service 1 → Web Service 5 → Web Service 6 → Output

Execute Workflow 2

User's request → Web Service 3 → Web Service 7 → Web Service 9 → Output

- # Web Service Component

Semantic — Web Service — Syntactic

Ontology (OWL) WSDL
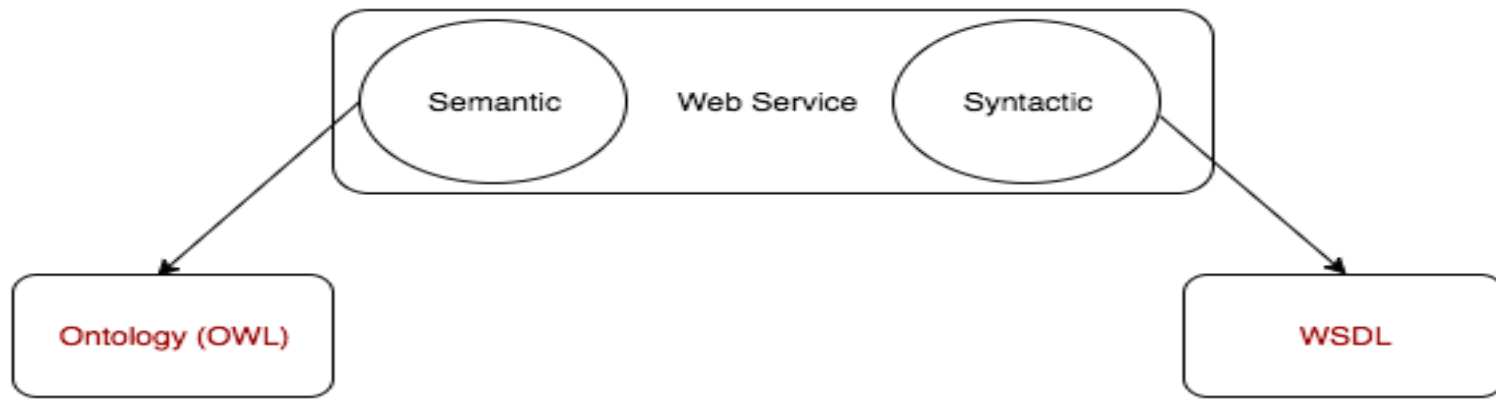
Ontology

- Definition : In computer science, an ontology is a formal naming and definition of the types, properties, and interrelationships of the entities that really or fundamentally exist for a particular domain of discourse.

- Role of Ontology in Web Semantic: The most important role of Ontology in Web Semantics is to help data integration. Basically, it helps Web Services that comes from different Service Providers, can understand others (about Semantic).
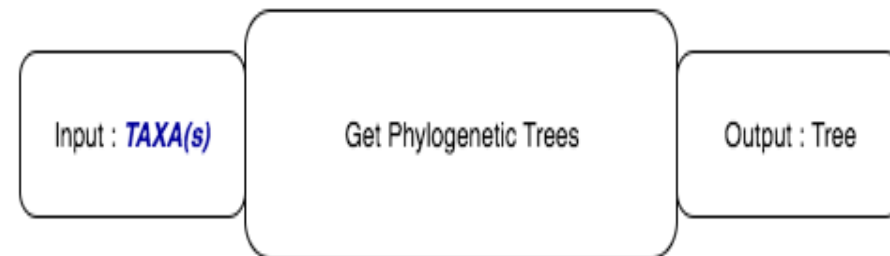
Ontology

- Example:
  - A bookseller may want to integrate data coming from different publishers.
  - Data can be imported from publisher's database
  - However, one database may use the term "author", whereas the other may use the term "creator"
  - To make data integration complete, an extra definition should be added to describe the fact that the relationship described as "author" is the same as "creator". (maybe "writer" "maker", etc.)
  - => This is an ontology

- Example in our project: Simple WorkFlow =>
  Build Phylogenetic Tree from content of a Web
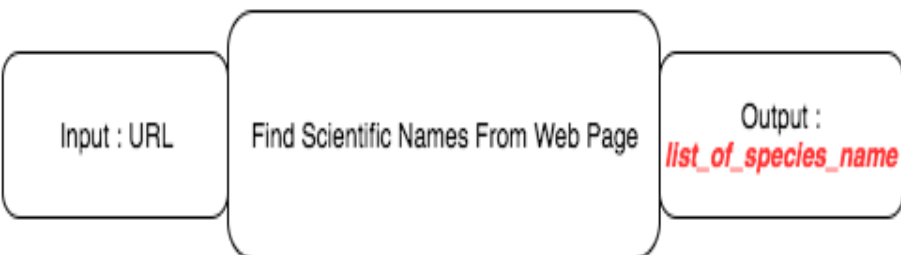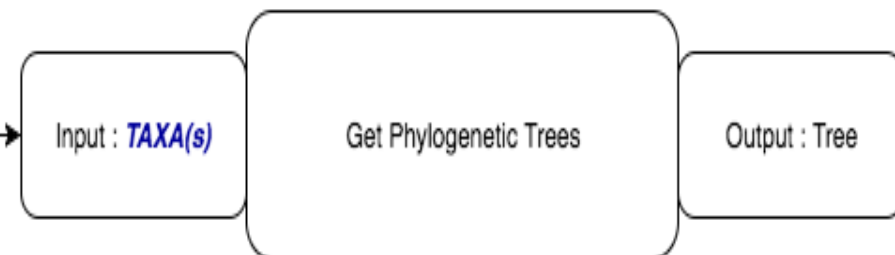 Page

Web Service 1

Input : URL

Find Scientific Names From Web Page

Output :
list_of_species_name

Web Service 2

Input : **TAXA(s)**

Get Phylogenetic Trees

Output : Tree

Ontology has to describe that **list_of_species_name** is **TAXA(s)**

Web Service 1

Input : URL

Find Scientific Names From Web Page

Output :
list_of_species_name

Web Service 2

Input : **TAXA(s)**

Get Phylogenetic Trees

Output : Tree

Current Ontology Framework

- We are building Ontology Framework based on CDAO ontology (See it on Protégé)

Future Work

- Full Ontology for Phylotastic Project
- Full features for Web Service Composition framework : Discovery, Composition and Execution
- User's Interactivities :
  - How to specify what users want ? (Controlled Natural Language, Spoken Language APIs, Speech Progress)
- Generate Workflow:
  - Reliability
  - Constrains

Future Work

- Contingency
  - Failures in generation
  - Failures in execution