

Pragmatics Driven Web Service Integration Based on Behavior -Intention Model

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Detailed abstract

The integration and sharing of geometric information has been the research focus of GIS field for a long period. In recent years, with the development of network technology, a lot of departments and research institutions involved to build their own web service based system following the concept of SOA (Service Oriented Architecture). At the same time, the demands of setting up a personalized and collaborative web service environment have been more and more intense. Because people are no longer satisfied with the syntax driven service composition methods, which need to bind the services statically and then assemble them in a fixed processing flow.

To improve the situations of static web service computation, some researchers have made a lot of efforts to the semantic web, and tried to achieve the dynamic integration of web service. But the semantic web mainly focuses on describing parameters and interfaces of web service using the knowledge in different research domains, and rarely take consider the intention of web service consumers and the variable processing context of a work-flow. This may confuse the consumers when they have to choose the most appropriate web service from multiple ones which have the same meanings in parameters and interface.

For example, there are so many image classification algorithms, such as maximum likelihood classification (MLC), support vector machine (SVM) based classification, and decision tree classification (DTC), etc. When we encapsulate the algorithms into web service, they may have the same content and meaning in both syntax and semantic level. But it is known to all is that different classification algorithms may have different application scopes, which are decided by the temporal, spatial and spectral resolution of the image to be classified. So it is clearly to find that, we must have to improve the current web service description method, if we could select the most applicable web service to fill the consumers' need.

In this paper, firstly we analyzed the essential ingredients and relations among the syntax, semantic, pragmatics level of web service from the viewpoint of

linguistics, and then proposed a conception model of pragmatics web service by discussing on some examples. Secondly, we reveal the abilities of the web service itself (*Behavior*) and intentions of web service consumers (*Intention*) are two aspects of pragmatics description for web services. Based on the formalized description of the *Behavior* and *Intention* ingredients, we extended the formal web service description model, and proposed a *Behavior- Intention* model to represent the applicability of the web service and the constraints of consumers' intention. Finally, we introduced an integration method for the dynamic composition of land cover web services based on the matching of request parameters and the ingredients of *Behavior- Intention* model. The methods proposed by this paper may improve the current web service description model by adding pragmatics information, and be helpful for the dynamic composition of web services.

Key words: Web Service, Integration, Pragmatics Web, Web Service Composition, Behavior-Intention

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