Available online at www.sciencedirect.com

ScienceDirect

Procedia Computer Science 62 (2015) 513 – 520

Procedia Computer Science

The 2015 International Conference on Soft Computing and Software Engineering (SCSE 2015)

Arabic Ontology model for financial Accounting

A.Hegazy[a], M.Sakre[b], Eman Khater[a,b,]*

[a]*Faculty of Computing and Information Technology, Arab Academy for Science Technology and Maritime Transport. ahegazy@aast.edu*
[c]*High Institute for computers and Information Technology, Elshorouk Academy. m_sakre2001@yahoo.com*

Abstract

Ontologies have become core components of many large applications. It's part of the Semantic Web framework. Many disciplines now develop standardized ontologies that domain experts can use to share and annotate information in their fields. Arabic is still not well supported. Designing and developing Arabic Ontologies need more than what is provided by keyword-based and more than analysing the morphology and grammar of the traditional Arabic language A few works on Arabic Semantic Web applications are derived from the traditional Arabic language and not in the specialized science. However, available search engines supporting Arabic language are typically limited to keyword searches and do not take in consideration the underlying semantics of the content. In this research, we propose a model for representing Arabic financial accounting knowledge in the Computer Technology domain using Ontologies. This paper addresses an Arabic financial ontology and presents a methodology for creating ontologies based on declarative knowledge representation systems.

© 2015 The Authors. Published by Elsevier B.V. This is an open access article under the CC BY-NC-ND license (http://creativecommons.org/licenses/by-nc-nd/4.0/).
Peer-review under responsibility of organizing committee of The 2015 International Conference on Soft Computing and Software Engineering (SCSE 2015)

Keywords: Accounting ontology; formal ontology; financial accounting standards; conceptual framework; Ontology Engineering.

1. Introduction

In the present approaches, building an accounting intelligent system primarily means to realize a conceptual domain model that will include all the concepts and relations between them by creating a domain ontology. This Ontology is made to distinguish between several types of revenues and expenses and their representation in the

* Corresponding author. Tel.: +2-010-603-334-751
E-mail address: emansafwatm@gmail.com

1877-0509 © 2015 The Authors. Published by Elsevier B.V. This is an open access article under the CC BY-NC-ND license (http://creativecommons.org/licenses/by-nc-nd/4.0/).
Peer-review under responsibility of organizing committee of The 2015 International Conference on Soft Computing and Software Engineering (SCSE 2015)
doi:10.1016/j.procs.2015.08.524

financial statements. Moreover identifying and understanding relevant concepts and the way these concepts are used in financial process. The importance of Arabic language processing tools has dramatically increased in the last decade because of the huge increment of Arabic digital content on the internet[1], and in internet users who speak Arabic. This fact increases the importance of creating language processing tools that can process this content, and interact with these users in better ways[2].

In this work a controlled narrow vocabulary was prepared by the experts from accounting domain particularly to financial accounting. Further, a relationship was explored within the concepts and verified. The main goal of this paper is building an accounting ontology as a first step for creating an organizational accounting repository that will allow domain knowledge storing and dissemination. In this research paper Centroid Clustering was used to find the relationship between concepts. A concept hierarchy was developed which can be used for simplifying and understanding accounting system in a better manner; it shall be an excellent learning tool for students, for reusing the tacit knowledge, therefore improve the performance of poor students, and shall support the machine communication for building concise relationships in Ontology domain over internet technology. This technique can be used for building Ontology in other domain as well. In addition to carrying out that developed technique to develop a visual course selector. The obtained result shows that the concept hierarchy cluster technique is a reliable technique for establishing strong relationship between concepts.

2. ONTOLOGY CONSTRUCTION

2.1. Approach

Building an ontology[3] and presenting a methodology for creating ontologies based on declarative knowledge representation systems[4]. It leverages the authors' experiences developing and maintaining ontologies. The advantage of organizing accounting literature in this way should be apparent.

knowledge acquisition become a modelling process aiming domain understanding, developing an abstract expertise model, building an ontology and some generic and specific models of problem solving, and, finally, knowledge representation and coding in a knowledge base [Motta, 2000]. The approach followed was based on an ontology engineering methodology as defined by both Horridge (2009) and Noy & Mcguinness (2000). The steps followed can be summarized as follow:

- Identification of the concepts and concept hierarchy.
- Identification of the disjoint concepts.
- Addition of all the relationships between concepts.
- Refinement of concepts based on relationships they participate in.
- Identification of definitions.
- Refinement of the ontology through various iterations of the above steps.

2.2. Formal ontology of the elements necessary for the measurement of financial position.

For the purpose of this paper, the definitions of the elements of the statement of financial position will be considered as defined in the Conceptual Framework. Fig. 1 contains an illustration of components of an ontology that pertain Arabic financial accounting.

The elements directly related to the measurement of financial position are defined as follow:

2.2.1. Classes

The developed Ontology consists of numerous classes, which are specific to the financial accounting domain. We try to provide an initial Ontology specialized in Arabic financial accounting domain. Enabling reuse of domain knowledge was one of the driving forces behind recent surge in Ontology research. Others can simply reuse the developed Ontology and extend it to describe their domain or serve their application of interest.

دریافت فوری ← متن کامل مقاله

ISIArticles
مرجع مقالات تخصصی ایران

- ✓ امکان دانلود نسخه تمام متن مقالات انگلیسی
- ✓ امکان دانلود نسخه ترجمه شده مقالات
- ✓ پذیرش سفارش ترجمه تخصصی
- ✓ امکان جستجو در آرشیو جامعی از صدها موضوع و هزاران مقاله
- ✓ امکان دانلود رایگان ۲ صفحه اول هر مقاله
- ✓ امکان پرداخت اینترنتی با کلیه کارت های عضو شتاب
- ✓ دانلود فوری مقاله پس از پرداخت آنلاین
- ✓ پشتیبانی کامل خرید با بهره مندی از سیستم هوشمند رهگیری سفارشات