

## Semantic Web Design and Programming Constraints in Arabic: Exploratory Study

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**Abstract:** This study aimed to analyze the reality of design and programming of Semantic Web and its tools in Arabic in order to identify the obstacles and difficulties that face the design and programming of Semantic Web, through the use of SWOT analysis which was applied on the latest related studies to find out the strengths, weaknesses, opportunities and threats that encounters the design and programming of Arabic Semantic Web in order to identify the most important recommendations that could be utilized in order to eliminate the difficulties and obstacles that has been reached by this research.

The most significant results reached by the analysis were the absence of an Arabic Ontology which can be relied upon in designing Semantic Web applications in Arabic, in addition to the ineffectiveness of the Arab lexicon - WordNet (AWN) as an alternative of Arabic Ontology. This study recommends the establishment of an Association for the Arab Semantic Web, and the creation of semantic platforms that supports the Arabic language in order to build an Arabic Ontology.

**Keywords:** Semantic Web, Arab WordNet AWN, Search Engines, Information Retrieval, Ontology, Information Technology.

### 1 INTRODUCTION:

The expansion and increase of Arabic content on the Internet has led to the emerging need for a helpful techniques and tools to enable us to retrieve information and to utilize of the Arabic content since there is no benefit from making the content available unless being retrieved & utilized by the users ,[9]this goes along with the evolution in the communication and information technology which led to the emergence of modern technologies and applications to help in accurate information retrieval, the most important technology is what is known as Semantic Web in knowledge environment which aims to be a medium that facilitates the information exchange and Retrieval [3].

One of the Semantic Web applications is semantic search which is defined as a process aiming at improving Internet search through adopting the Ontology which represents web content according to the concepts and semantics, by linking them in a meaningful relationship depending on logic and mathematical reasoning, through the ontology language OWL so as to convert the available data on the Web to a format recognized by the machine [5] , to the extent that may help in accessing the required information accurately and efficiently. This makes a semantic search engine a distinct from traditional search engines that rely on copying search without taking the concept and the meaning of the keyword into account resulting in inaccurate results [14]. The Arabic lexicon - WordNet (AWN) is the most popular Arabic Ontology which is a glossary of words issued in English and was translated into [4].

In spite of the importance of semantic search engines, there are many available on the Internet, but there is no reliable Arabic search engine among them. While most of the semantic techniques support Latin languages rather than Arabic language and in addition to neglecting some Arabic considerations, and due to the lack of semantic search engines which supporting Arabic language, the need to develop semantic search engines supporting Arabic language basically has emerged, where the search engines available on the Internet has been designed depending on the needs of other languages, making it inappropriate to the Arabic language which has its own features, distinguishing it from the rest of Latin languages [9]. However, none of them was available to be adopted and utilized by the users to the extent which confirms that Arabic semantic search engines design and programming and their tools are still at their early beginning. In addition, they encounter many difficulties that would impede the design of Arabic semantic search engine to be available for utilization by users.

As a result of the lack of studies on the evaluation and analysis of Arabic semantic search engines proposed by researchers, the current study aims at collecting the studies of Design and Programming of proposed systems which are related to semantic search engines or one of its supporting tools in Arabic language in order to introduce a number of recommendations that would help in providing solutions to face these difficulties, that would help researchers in the future and guides them to design Arabic Semantic search engine or its tools.

## **2 RESEARCH PROBLEM**

The research problem is represented in the following question:

1. What are the obstacles of design and programming Semantic Web and its tools in Arabic?

To answer the research problem requires the answer of the following sub-questions:

- What are the strengths and weaknesses that make the design and programming of Semantic Web and its tools difficult in Arabic?
- What are the opportunities and threats that make the design and programming of Semantic Web and its tools difficult in Arabic?

## **3 OBJECTIVES OF THE STUDY**

### **3.1 Main Objectives**

As a result of the importance of Information Retrieval tools and systems in general, which makes it easier to take advantage of the Arabic content available online , especially in such age of rapid enlargement of online information available and development of information technology, and as a result of the lack of traditional search engines in comparison to semantic search engines in restoring the requested information, which may not meet the needs of user in an accurate manner as proved by many studies, the importance of Semantic Web concept and its different tools has increased which can be relied upon to building semantic search engine, in order to increase the accuracy of the retrieved results depending on analyze and understanding the meaning of words included in the search.

The objective of the current study is to identifying the obstacles of design and programming Semantic Web in Arabic through analyzing studies conducted for designing Arabic semantic systems and its tools, To achieve this objective, the current study tackled many studies of semantic models developed and programmed in Arabic as follows:

1. Ontology-based Architecture for an Arabic Semantic Search Engine
2. ArabSearch- A Semantic Agent for Searching Using Semantics
3. Combining Semantic Techniques to Enhance Arabic Web Content Retrieval

### **3.2 Detailed Objectives**

The realization of the research objectives is related to the realization of some detailed objectives which are:

- Identify the obstacles of design and programming Semantic Web and its tools in Arabic.

- Provide recommendations to overcome such obstacles in order to achieve benefit from Semantic Web and its tools which support Arabic language.

#### 4 RESEARCH APPROACH

The researcher adopted two approaches in the current study as needed by the research. Such approaches are detailed as follows:

1. The descriptive approach: for identifying the reality of Arabic semantic web engines by the means of accessing the published studies related to semantic web in Arabic through searching the studies and researches related to the subject matter of this study in many aspects such as databases, web sites and some of specialized periodical web pages for an attempt to collect studies related to design and programming especial tools related to semantic web in Arabic generally and Arab semantic search engines particularly.
2. SWOT Analysis: it is an effective tool to analyze Strengths, Weaknesses, Opportunities, Risks and Threats that may face design and programming semantic web in Arabic. Applying SWOT Analysis can help in matching threats and opportunities with strengths and weaknesses. Such process aims to introduce some recommendations to be relied upon and utilized when designing and programming semantic web in Arabic.

#### 5 LITERATURE REVIEW

The researcher has concluded to literatures that tackled semantic web in Arabic generally in different aspects. Now, we will review some scientific research related to the development and design of tools and systems related to semantic web and its tools in Arabic, whether to semantic search engines development, the creation of Arabic Ontology or improvement of semantic annotation tools etc. we will first review the previous literature which shall be analyzed by this research as follows:

**1. "Ontology-based Architecture for an Arabic Semantic Search Engine"[14].** This study aimed to design search engine based on Arabic Ontology in specific field, in addition to use semantic logic in analyzing user inquiry to retrieve more accurate results. By provided Traditional search engines with two designed tools which are: Semantic analyst query and Semantic rank identifier. Results showed the clear difference in accuracy and the results number of traditional search engine search "Google" after provided with the designed tools comparing with the search results before them ,which proved that the semantic search engine better than traditional search engines. The most important recommendations were the need for developing Arabic Ontology to design search engine based on Arabic language.

**2. "Arab Search- A Semantic Agent for Searching Using Semantics"[13].** This study aimed to design a prototype called "Arab Search" which is a semantic agent based on Arabic ontology in Education field as well as adding some modifications which support Arabic language, that used as an additional tool for keyword-based search engine. It was designed tool that can be attached to any keyword-based search engine such as "Google and Yahoo". The prototype is a designed screen responsible for taking user inquiry then process it depending on the ontology, and then redirect the inquiry to the search engine in order to retrieve the required information. The results showed the high accuracy of the keyword-based search engine "Google" after adding the proposed tool, which confirms the need for processing tools depending on the natural language which help in understanding the semantics of the user keywords in order to reach accurate results.

**3. "Combining Semantic Techniques to Enhance Arabic Web Content Retrieval"[4].** This study aimed to design system for semantic retrieval based on AWN which consist of four tasks which are: preparing the query, Expansion of the query, Retrieve the information, and Exclusion of repeated results. The results showed that after the experiment, the clear difference between the proposed systems based on semantic search and traditional search engines in information retrieval in the Astronomy field. Because the writers in the field of astronomy are specialists not as the writers in the fields of sports, technology which are full

of abbreviations and slang words, which may obstacle reaching to all related documents. This study confirms that in case of updating AWN dictionary, it could not cover all lexical at all fields.

#### **The Other Relevant Literature Review:**

**1. "AraTation: an Arabic semantic annotation tool" [10].** This study aimed to develop an Arabic semantic annotation tool which called "AraTation" in order to explain the content of the Arab News on the web in semantic way and extract information automatically. Annotation process includes three (3) stages which are: text preprocessing, words extraction, and semantic annotation. This system was assessed through different 10 words chosen randomly in order to measure both accuracy and retrieval by applying such words on twenty five (25) web pages. Results after evaluation showed great improvement in extracting information semantically. Additionally, such study recommended to expanding Ontology to include another fields and specializations.

**2. "SemQ: A Proposed Framework for Representing Semantic Opposition in the Holy Quran using Semantic Web" [6].** This study aimed to developing a computer model using semantic web techniques based on (Ontology) to represent semantic in Arabic and It is a project under implementation. The results of the study can benefit in creating processing tools for intelligent language that will be useful in analyzing Quran text. Also could be useful as tools for analyzing Arabic text online; It is a system that takes Quran verse as an input, then show word list or semantic antonym for the Quran verse along with the semantic synonym as an output . The system depends on semantic analysis for the Quran verse in order to extract semantic antonym for each word not the verse as a one integrated sentence considering that the system consists of two main components as follows: Specialized Ontology : it was defined in women field only because creating ontology is complicated. And "SemQ" tool: such tool may determine Arabic semantic antonym terms.

**3. "Yago ontology as a resource for the enrichment of Named Entities in Arabic WordNet"[2].**The study aims to enrich AWN automatically ,depending on the Yago Ontology as a source which includes 2 million units . It depend on extracting the units in Arabic language from the question and translate it to the English language to use it for extracting Yago units and finally extracting facts based on units extracted from the previous stage. Then translate the content (units and facts) and link the Yago units with its match in AWN. The evaluation had been performed being 547 questions and the number of different questions has become 472 question as a result of some units repetition in more than one question. After implementing steps, it has been enriched by Yago ontology with 374 questions (79%). After experiment, results showed the possibility of enriching AWN through other ontology automatically such as Yago ontology in order to try to solve the problem of the coverage of the Arabic language.

**4. "Developing Ontology for Arabic Blogs Retrieval" [8].** This study aimed to the provision of a model of Arab ontology in the field of computers based on the Arabic language features to be used in information retrieval from Arab blogs specialized in the field of computer, because of the absence of an Arab ontology in the field of computers specified for Arab blogs. Ontology designed through analyzing the content of some Arab blogs had been evaluated in the field of computers. The result revealed that the largest percentages of words representing the content of these blogs are slang words. This is an indication of the impact of the Internet and social networking on the Arabic language. Also the user needs additional information when searching in Arabic blogs. The most important recommendations is the need for integrate between modern and traditional Arabic vocabulary and to improve the accuracy of the results as the Semantic Web ontology are frequently based on the classical Arabic language so, the results will be inaccurate.

**5. "An Arabic language framework for semantic web"[9] .** This study aimed to proposed a new framework in order to add the Semantic Web application to the current applications

available online in order to improve the linking, merging and searching process for different types of applications. This framework serves the Arabic language processing as well as the design allows adapted with any other language. The proposed framework seeks to improve the conversion of different types of applications in accordance with the requirements of Semantic Web applications, which serves the Arabic language processing and consists of two main components: Education ontology, and semantic query engine for retrieval semantic of web data. The results showed through the evaluation of a proposed framework its effectiveness in helping user to access the information required in the Arabic language, as the current Semantic Web techniques and its tools are still incapable of supporting Arabic language that may constrain the benefit from Semantic Web services and applications. The most important recommendations is the need to develop Arabic ontology because of the translation of the English ontology to Arabic will be useless, also both languages have many differences in the characteristics and features.

**6. "A Comparison between Ontology-Based and Translation-Based Semantic Search Engines for Arabic Blogs"[7]** . This study aimed to develop a specialized semantic Arabic search engine for retrieval information from Arabic blogs specialized in computer science which called "my blog" to increase accuracy depending on the language processing and ontology, as users' queries was processed semantically in two methods depending on: "ontology" and "translation". Both methods impact on the accuracy of information retrieval from the Arabic blogs in order to assess the two tools developed. An initial model had been developed for discovering documents semantically in an automatic manner through indexing the metadata related to these documents and responding to the relevant queries. By using the graph of details concepts and connotations related to these documents in special files "RDF" and ontology written in an ontology language "OWL". Engines were tested through 10 easy and difficult questions in the computer field. After testing the engine in terms of the speed of data retrieval and accuracy, the results show that semantic search engine based on translation better than semantic search engine based on ontology and that concepts represented through the ontology used were not sufficient for approval on traditional Arabic which using verbs and roots, so the researchers recommended that it is necessary to create ontology combines modern and traditional Arabic content, acronyms and slang terms that can be depend upon when developing Arabic semantic search engines .

**7. "Enhanced Semantic Arabic Question Answering System Based on Khoja Stemmer And AWN" [12]** . The study aimed to design a proposed Arabic system for question and answer based on ontology to expand the query through AWN, that for expanding the question through the ontology and then use the result for search through Google search engine. Such system had been tested and evaluated through 20 questions. Initial experiments had been conducted; the first based using one level of expansion while the second is based on two levels of expansion. Three methods of measurement had been performed; accuracy, ranking average, answering the questions. Considering the given results before using the system, we find that results in their entirety related but is far in content. After that, the system shows that the results closely related to questions, as questions shall be expanded through the ontology and then search through Google search engine. The Results show through the comparison between performances of expansion of one and with two levels, that expansion with one level shall be enough for perfect performance of the system and to increase the accuracy of the results.

**8. "Arabic WordNet semantic relations enrichment through morpho-lexical patterns"[11]**. The study aimed to design a proposed system to create Ontology for the Arabic language and to cover deficiencies in semantic relations in AWN, where the proposed system is based on analysis of the article content to extract ontology concepts and semantic relationships between them through two phases: the first one reveals semantic relations in the Arabic text extracted from Wikipedia, and the second is set to verify semantic relations and then added after verification to AWN database. After evaluating the system through accuracy



resulting from the validation of the extracted semantic relationship , through tested by 2050 articles from Wikipedia to discover semantic relations and the validity of these relationships has been assessed and found to be 39.15%. The evaluation results showed that the accuracy varies from one relationship to another; it was of high quality in some relationships and unsatisfactory with others for several reasons including: the limited number of models relied upon with respect to semantic relations that affect the number of semantic relations that may be identified.

**9. "Using Arabic Wordnet for semantic indexing in information retrieval system" [1] .**

This study aimed to investigate the effect of ontology in the process of semantic indexing of documents and queries, through representing documents and concepts of queries extracted from AWN. During the experiment, the system was evaluated through 70 query in many fields as the documents was indexed semantically depending on AWN and the comparison between the documents indexing strategies and queries was conducted to figure out which one is more effective. The accuracy of documents indexing had been calculated and then indexing queries, and then indexing simple queries. Finally, the indexing of documents and inquiries test shall be performed together in semantic way. Results showed that the strategy of the indexing of documents and inquiries improved semantically concerning accuracy on the remaining strategies that have been tested, that it improved Arabic documents retrieval, but such result cannot be useful completely as there is no full Arabic dictionary can be relied upon in semantic knowledge representation.

**10. "Semantic Annotation Tool for Annotating Arabic Web Documents" [5] .** The study intended to design a tool to automatically semantic annotation called "AMASAT" that a shortcut to (Automatic Arabic Semantic Annotation Tool), this tool help for extracting Semantic annotation automatically from Arabic sites in different files formats such as Resource Description Files (RDF) depending on ontology. Which help users to find information related to health and nutrition in semantically as the proposed tool is comprised of two components: first is an interface for the user which represents the users characteristics and allow them to enter his own query then show results ,and the second component is the ontology which manage the integration of ontologies, it takes the document as an input and produces two types of RDF files which include semantic annotation for the document inserted; these files are stored in a warehouse such as Sesame which can be used later with semantic applications. The evaluation was conducted through 150 type of HTML file then manually explained using three ontologies in the field of food, nutrition and health. Then compare the files that have resulted through the proposed tool through performance measurement and accuracy and recall, And the results showed high accuracy and recall files generated through the performance, except for the area of nutrition due to the difficulty of representing entities or units in the Arabic language. The system proposed can be useful in support Semantic Web search in respect to the Arabic language.

**6. An analysis of the most important three studies reviews which is directly related to Semantic Web design and programming in Arabic:**

The following section show SWOT analysis of Semantic Web design and Programming obstacles in Arabic based on the following analysis and evaluation:

**6.1 The First Study:**

Analysis the study "Ontology-based Architecture for an Arabic Semantic Search Engine" [5] based on SWOT analysis:

*Strengths*

- The study illustrated the importance of ontology to improve information retrieval through semantic search engines compared with traditional search engines mechanism to explain the substantial differences between them.

- The study focused on designing a proposed model for Arabic semantic search engine based on the Arabic ontology through the use of semantic logic.
- The study focused on creating ontology rich with vocabulary in the field of computers, to be relied upon in designing Arabic semantic search engine, which will help to understand the user query to improve the results accuracy.

The study presented the mechanism of the proposed model and its components. The traditional search engine was provided with two designed tools: Semantic Query Analyzer and Semantic Ranker.

#### *Weaknesses*

- The study pointed out the lack of Arabic ontology which can be fully relied upon to create Arabic semantic search engine.
- The study confirmed the lack of reliability of the lexicon AWN as an alternative for Arabic ontology.

The study confirmed the difficulty of creating an Arabic ontology covering all aspects compared with Latin available ontologies.

#### *Opportunities*

- The study focused on the easy attachment tool to any traditional search engine available online, which may helps to improve the search retrieved results accuracy.

#### *Threats*

- The study did not provide the proposed model as a system for users and researchers to use it and evaluated in order to improve the model and develop it.

The Limited coverage of the designed ontology in one field which is computer field, and that limits the benefit of the proposed model in other fields.

### **6.2 The Second Study:**

Analysis the study “ArabSearch- A Semantic Agent for Searching Using Semantics” [14] based on SWOT analysis:

#### *Strengths*

- The study introduced a proposed model designed as semantic agent called "Arab Search", which used as an additional tool for traditional search engines to help the users to access the required information in Arabic.
- The study focused on providing the proposed model with global ontology in education field, with the necessary amendments to support the Arabic language upon which the assessment will be conducted.
- The study provided the architecture for designing and executing the initial model called "Arab Search."
- The study focused on the amendment of the user's query by the proposed model "Arab Search" instead of wasting effort in amending the classic search engine itself.
- The study focused on measuring the accuracy of search results after adding the tool for search engine "Google", which has proven the effectiveness in improving results accuracy.

#### *Weaknesses*

- The study confirmed the need for the standard language processing tools for semantic and grammar analysis of the user queries, to find the appropriate concepts in the ontology.

#### *Opportunities*

- The study explained that the semantic search depended on retrieve documents based on the semantic analysis of its content through processing the natural language.
- The study focused on designing tool that can be attached to any traditional search engines such as Google and Yahoo.

#### *Threats*

- The proposed model by the study non-available for users and researchers to be evaluated and utilized in order to improve the model and develop it upon their opinions and feedback.
- The limited coverage for the designed ontology in the study for one field which is the Education, and that limits the benefit of the proposed model in other fields.

### **6.3 The Third Study:**

Analysis the study “Combining Semantic Techniques to Enhance Arabic Web Content Retrieval” [13] based on SWOT analysis:

#### *Strengths*

- The study focused on improving the retrieved search results from the web depending on semantic criteria, as it expands the query with relevant additional words are drawn from AWN in accordance with the concept of query.
- The study focuses on change the original composition of the query which make a less search results and related to users query.
- The study concerned with incorporating other Lexicons with AWN to address the defects of AWN with respect to modern terminology and celebrity names.
- The study intended to expanding main keywords that will help information retrieval because expanding unimportant words may widen the search scope, causing retrieve unrelated information.
- The study showed after the experiment, the obvious difference between the proposed systems based on semantic search and traditional search engines, especially in the field of astronomy.

#### *Weaknesses*

- The study confirmed the ineffectiveness of the system in case of long inquiries.
- The study mentioned that the use of lexicon such as AWN may cause some problems because it does not include events, personalities and modern place names.

#### *Opportunities*

- The study focused on relying upon Semantic Web techniques through inquire processing in a manner that may help to increase the results accuracy whether by replacing some mysterious words with clearer terms of modern lexicon or add terms along with keywords.

#### *Threats*

- The study confirmed that the language dictionaries do not include the new terminology and celebrity names and abbreviations and this may cause some deficiencies in the system.
- The study mentioned that AWN lexicon will not be able to cover all terms in all fields.

## **7 RESULTS ANALYSIS**



Based on the studies that have been analyzed according to the SWOT analysis, Semantic Web design and programming obstacles in Arabic includes the following main axes:

#### **7.1 First: Ontology**

Studies confirmed the Lack of the Arabic ontologies which can be relied upon when designing Semantic Web applications in Arabic, where the great efforts were exerted to create ontology which was related to Latin languages .Regarding Arabic ontology; the production is very limited, and the most significance efforts was the translation of WordNet into Arabic for many reasons as follows:

1. The lack of Arabic ontology to be relied upon as a basis when creating any of Semantic Web applications tools in Arabic in order to help in processing the natural language for the Arabic content.
2. The difficulty of create Arabic ontology as a comprehensive ontology for all fields by individual efforts because of the difficulty and complexity of the Arabic language, its vocabulary and diversity as per users' different cultures and environments.
3. Deficiencies in some systems which responsible for creating ontology due to lack of support for processing Arabic language or encoding Arabic letters.

#### **7.2 Second: Arabic WordNet (AWN)**

Although most of Arabic researches and studies relied on AWN as a basis for Semantic Web applications in Arabic in order to overcome the shortage in the Arabic ontology, but it showed the ineffectiveness of AWN in many cases for the following reasons:

1. The translation of lexicon WordNet vocabulary from English into Arabic language would be inadequate , because of the difference idioms and terminologies between the two languages as a result of the difference between both languages users culture.
2. Lexicon AWN did not contain phenomena, characters and place names in Arabic making it inadequate to support the online Arabic content.
3. The difficulty of enrich and update AWN with new Arabic terms and synonyms manually which requires automatic tools to do it.
4. Lexicon AWN did not contain Arabic slang words which had been used as a result of the widespread use of social networks in addition to the absence of some semantic relations.

#### **7.3 Third:The Development of software for creating ontology and Semantic Applications:**

1. Available software and tools to develop and create Semantic Web and its tools designed by foreigners to support Latin languages, which are totally different from the Arabic language and its features.
2. The lack of semantic Arabic editor which supports RDF files.
3. The lack of open sources in the Arabic language for Semantic Web applications tools and Web services.
4. Shortage of Arab editors for both of OWL and RDF files.

#### **7.4 Fourth: Arabic Language**

Arabic is too hard and complicated rather than Latin languages for the following reasons:

1. The Arabic language is a syntactic and derivative, thus, the systems designed for Latin Languages do not match with Arabic Language .
2. Arabic language having common vocabularies and meanings which are too hard to be coded.
3. Difficulty of Arabic language because of its complicated specifications related to conjugate and grammar roles .
4. Arabic language ambiguity in some words because of vowels and replace some letters .

5. Arabic language starts from right to left unlike the English language.

## 8 RECOMMENDATION

Based on what has been deduced through the current study, the researcher recommends a number of recommendations to help in overcoming the obstacles to the design and programming of the Semantic Web in Arabic:

1. Establishment of an association or union specialized in Arab semantic web in order to unify researchers' efforts and people who concerned in all aspects related to Arabic semantic web in order to prevent repeating or wasting the effort.
2. Development of platforms and semantic web programs supporting Arabic language upon which Ontology and semantic web applications could be created due to the deficiencies of systems and applications designed abroad to support Arabic and its specifications.
3. Creating Arabic Ontology by unite researchers' efforts with specialists working in all fields which help for designing and establishing perfect and dependable Arabic Ontology as basic for all semantic web applications.
4. Developing tools and applications related to semantic annotation for Arabic web content, in order to transmit Arabic information available online to be understood easily by the machine in order to help improving the accuracy of information retrieval .
5. Addressing deficiencies in lexicon AWN through the integration of another Arabic dictionaries in addition to developing semantic tools that could analyze Arabic content online in order to extract new Arabic terms and words then add them to WordNet database for enrich this database and processing the text with its vocabularies.
6. Providing the proposed Arabic semantic models online through Arabic studies in order to perform more studies and assess it to benefit from it and attempt to develop it and remedy the deficiencies.
7. Benefit from successful experiments related to semantic web for other languages which is similar to Arabic language features such as semantic web experiments in Farsi and Hebrew language which have features similar to Arabic rather than Latin languages which is totally different from the Arabic languages.

## 10 CONCLUSION

Most of the online search engines are keyword-based ,and their search results could be inaccurate and sometimes misleading for some reasons. Semantic search engines are the best alternative to the keyword-based search engines because they depend on the concepts and meanings of the keywords of the users' queries . But most of the semantic search engines available online and their tools do not support Arabic language.

In this study we explored issues behind the lack of Arabic support in Semantic Web tools and applications to recommend some suggestions for overcoming these problems , through analyzed the studies related to the Arabic semantic web applications and its tools to investigate its support to the Arabic language in order to identify the obstacles and difficulties that face the design and programming of Semantic Web, through the use of SWOT analysis. The most significant results reached by the analysis were the absence of an Arabic Ontology which can be relied upon in designing Semantic Web applications in Arabic, in addition to the ineffectiveness of the Arab lexicon - WordNet (AWN) as an alternative of Arabic Ontology , also the need for the development of software for creating ontology and Semantic Applications which support the processing of Arabic text because the Arabic language is too hard and complicated rather than Latin languages. This study recommends the establishment of an Association for the Arab Semantic Web, and the creation of a semantic platforms that supports the Arabic language in order to build an Arabic Ontology.

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