

Research on the Application of Physical Information Searching based on the Internet

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Abstract. The main source of sports information in Chinese portal sites comes from self collection. Currently sport channels content construction has formed a good and interactive pattern of sports news information and material background. Sport information resource is composed of types of knowledge, skills, news, products, entertainment and others. Sport information mainly displays as audio, image, pictures and texts. The portal sites all set up multi-entrance content delivery channels through integrating different products. The communication of sports information has high transmission rating, arrival rating and efficiency rating. As a great world game, Olympic Games offer opportunity for sports information communications. Meanwhile, web communication is also the best model for Olympic news broadcasting.

Introduction

Information era, information, together with the material and energy, already are called three greatest resources of modern society. Adequately developing and making use of the information resources are core contents of Chinese information. Among the activities of sports management, planning and decision cannot run without information, which is also regarded as main basis among organizing and controlling management process, in fact the whole process of P.E management is a process of handling information. As a emerging discipline, sports information management (SIM) put forward to research under the circumstance of the worldwide economic and WTO, will be doubtless to supply a new management idea and a new mode, at the same time, provide science-guide for P.E information process, information construction, also, it will be meaning to developing business servicing of sports information.

With the advent of information era, Internet-characterized modern communication means and economy pattern is gradually entering people's work, study, life, leisure and entertainment. Sports information has become the important information resource on Internet. Infused search engine shows that sports search ranked the 6th in top 10 global search themes [1]. Currently, among the Chinese portal sites, comprehensive portal, local portal, vertical portal and profession portal compose the rich sports information websites. Portal sites are the application systems access to some type of comprehensive portal information resource and providing information service. Sports information websites are mainly dominated by Sina, Sohu, Netease and Tencent. Among the top 50 Chinese network flow, with giant network flow, Sohu owns 5 websites. Sina made its fortune by sports news and stored rich experience in sports marketing and reporting important world sports meeting via network [2]. Besides, Sina has obtained remarkable advantage in sports marketing and promoted its reporting on Olympics Comparing to Sina's advantage in sports marketing and brand, Tencent's advantage lies in its huge 2.5 hundred million users and formation of the biggest global single-culture Chinese community. Meanwhile, Tencent has qq.com, IM real-time communication tool and leisure games and advantage in communications. Netease is one of the earliest three portal sites in China and concentrates in sports content[3]. Its advantage lies in its high user loyalty to and NO. 1 in mails and picture products. Therefore, in order to study on sports information and its communicators, the four portal sites are the necessity and reference.

At present, sports channel content construction has formed a pattern with sports news centered and information background aided and well-interactive with the natives. Among the websites, sports news takes up the most pages, including the news about events, games, sports stars and famous teams. The four portal sites have opened channels of sports and Olympics, which include columns of basketball, football, tennis, chess and cards, comprehensive news, sports information, pictures, videos, blogs, community, etc. The Olympic column has opened Olympic database, including all of the previous Olympics, such as the introduction to the Olympiads, historic performance, introduction to the Olympic champions, world record of the events, Olympic records, etc. Besides sports news, picture database, knowledge database, evening broadcasting, video, etc, has become the important content provided by the websites, such as Sohu's football database, S video, Sina's NBA database, Sina live, Netease's WIKI sports information database. The portal sites pay great attention to providing interactive and personalized information. Hence, sports stars' blogs, sports community, news comment, news investigation, voting, networking anchors live, video search are the important content of the portal sites. For example, during Beijing Olympics, Sohu newly opened 16 series, 48 networks broadcasting products, such as Beijing Olympics Live, Beijing Olympics News Express, Gold Medal Resplendence, Evening every day, Five Continents Flames, Medal Tally, Teams and stars. What's more, Sohu started more than ten news and video live columns, taking Olympic news broadcasting, Olympic fun view, and Olympic focus news for examples.

Physical Information Management and Sports Information Portal Sites

As managing sports information resources and its developing activities, the main factor of SIM primarily includes the main body, object, information users and management means. Provided with characteristic of all-round, economic, system, scientific, its contents includes the analysis of user information need, construction, development and utilization, network information resources management. At last the evolution of SIM divides into natural, documents, technology modern information management period.

The status indicates that researches of SIM theories in our country lag in the fulfillment, still have no system theories research, and its development presents the unbalance of the section realm. As a science of basic regulation, principle and application method, SIM, a crossed, synthetic, applied science, is based on the development of informatics, management science and IT, also, other science, such as information science, librarianship, archives and documents provide it with the technique and methods. In addition, the fulfillment of information management activities leads to forming and developing of SIM. According to three levels of structures, core contents of SIM include three aspects: one is the foundation research, the other is applied methods, as the application realm, is the third. The method structure of SIM is divided into three levels of structures, namely philosophy, general and specialized method. Information method and system method are included in specialized method.

Currently, the portal sites set up multi-entry content delivery channels through integrating different products and realized cross pushing. They broadcast sports information in the following channels and ways. Firstly, they blend sports news information into basic Internet applicators, such as e-mails, real-time communication software owned by all of the portal sites. For example, Sina UC, Sohu Search Q, Netease POPO, Tencent QQ. The latter pushed and sent Olympic news to the receivers' desktop at the very first time via its QQ. Tencent broadcast sports information to 2.2 hundred million Chinese users through its interactive QQ.com, creative real-time reporting and fluent sharing QQ live. Secondly, the portal sites display limited sports information in different forms with different expressions via multimedia. They integrate texts, pictures and cartoons to replace the traditional print reports. They have live broadcasting the games in the form of chat room. They broadcast the game videos and interviews by network videos and expand information delivery channels via mobile text messages and mobile net surfing. The last but not the least, they make the users participate information making and broadcasting by using the so-called grass-rooted twitters. Resources of community and forums are used to provide the user's opinions exchange to expand the broadcasting scope and attract more attention. Three musketeers of Web 2.0, blogs, podcast and wild, are used to push news reporting into the era of Public News. For example, Sina fully used its blogs of

sports stars, Olympic champions, social celebs, professionals and experts. The blogs are far more than the other opponents both in numbers and coverage and they promote Sina blog flows greatly increasing during Beijing Olympics.

Query Information for First-Order Logic

The implementation of proposed system consists of two parts. The first part is Ontology Creation and the second part is information retrieval from the Sports Domain Ontology. The fast step of Ontology Creation is to identify the domain knowledge and collects the relevant terms of the domain (concepts, instances, attributes) that represent concept, properties and relation between concepts, etc. The second step identifies the hierarchical terms. The clubs name can be Chelsea club, Everton club, or Barcelona club etc. These clubs also have their respective football competitions or football leagues. Others concepts may have their hierarchical concepts. The third step defines the inferences rules for semantic constraints to their relations between sports concepts. The final step is to build the Sports Domain Ontology according to the above steps defined.

Query information of our system uses the First-Order Logic (FOL) rules to write queries for user requested terms from the sports domain ontology. Firstly, identify the retrieved terms and these are applied as symbols for first-order logic. This system consists of five concepts, but regions concepts have the sub regions (nations) concepts. So, the information retrieval system has total in 6 symbols words. We define the terms as follows which is shown in Fig. 1:

cl	: define the terms for sports club_name (team_name or squad_name)
p	: define the terms for player_name
c	: define the terms for competition_name
r	: define the terms for region_name
n	: define the terms for nation_name
t	: define the terms for competition playing date/time (year)

Fig. 1 The definition of the main terms

Query 1: "The football clubs names involve in Spain"

Information retrieval system of Sports related Query 1 can answer most of the sports information that can give the required information based on the semantic relationships. This query type retrieves the desired sports related objects "Clubs name and Sub region (nation) name" and then gives the results of the semantic relationships-has Involved.

This query type can retrieve the football clubs results for the specific football league (or) competition.

For instance query:

Query 2: "The football-clubs names corresponding with English FA Premier League"

To satisfy this query, the system matches the following condition and then gives the results.

Query 2 likes most of the sports related information that can give the required information based on the given clubs names. This query type can extract the desired sports related objects "Clubs name and competition name" that related the semantic relationships-has Participated.

This type of query can answer the qualified football clubs results for FIFA World Cup in a specific competition time. Example query:

Query 3: "The qualified clubs name in 2002 FIFA World Cup"

Sports related Query 3 can give the results of semantic information that may be specific both clubs and competition concepts and can answer more precise information. This query can retrieve the desired sports related objects "Clubs name, date/time and competitions name" that related the semantic relationships-has Qualified Clubs.

This type of query can give the qualified time of FIFA World Cup for user requested club. For instance:

Query 4: "The date/time qualified in FIFA World Cup for Portugal squad"

This query can retrieve the desired sports related objects "date/time, Competition name and Club name" that related the semantic relationships- has Qualified Time. To satisfy this query, the system matches the following condition and then gives the results.

This query type can retrieve the qualified football clubs results in FIFA World Cup for the user requested time and region. For example:

Query 5: "The qualified clubs name for Asia region in 2010 World Cup"

To satisfy this query, the system matches the First-Order Logic and then gives the results.

This query can answer the sports related objects "Club name, Region name, date/time and Competition name that related the semantic relationships-has involved for a specific region.

This type of query can answer the football clubs names that are concerned with the user requested player and the qualified time of the national club in FIFA World Cup. Example of query:

Query 6: "The clubs names belong to Kaka' and the qualified time of the national team in FIFA World Cup.

Sports related Query 6 can give the semantic information that may be specific both player name and competition concepts and can answer more precise information. This can retrieve the desired sports related objects "Clubs name, Player name, date/time and competitions name" that are related the semantic relationships- has Played As Ex Member, has Played As Member, has Played As Nation Club Member and has Qualified Time.

This type of query can give the football clubs names related to the specific football player. For instance:

Query 7:"The football clubs names concern with David Beckham

Query 7 can answer the desired sports related objects "Clubs name and Player name" that related the semantic relationships –has played as Ex Member, has played as Member and has played as Nation Club Member.

To satisfy this query, the system matches with First-Order Logic rules and then gives the results. This query type can retrieve the football clubs names that are concerned with the user requested player and the qualified time the player in FIFA World Cup.

Conclusions

This paper presented the Sports Domain Ontology architecture and sports information retrieval with semantic relationships between concepts. We have identified concepts, relations and attributes for sports domain. We have also built the hierarchical relationships between top level concepts categories. And then, define the terms for building Sports Ontology. The proposed ontology is characterized qualitative and quantitative including semantic relationships. These semantic relationships are used for mapping concepts with predefined First-Order Logic rules and retrieve the results according to the mapping concepts. Information retrieval system using semantic relationships based queries can give more semantic meaning results than concepts based queries. This system not support more comprehensive ontology for sports domain but also share, reuse and process these domain knowledge among the users. We believe that the information retrieval from Sports Domain Ontology using First-Order Logic (FOL) rules can be efficiently and effectively applied in the user community.

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