[From: *Studies in machine translation*, international workshop…Riyadh, March 1985]

B A S M (The Saudi Terminology Data Bank)

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Introduction

BASM is an acronym which stands for Al-bank al-Aali al-Saudi Lilmustalahat (Saudi Terminology Data Bank). So it is an Arabic acronym for an Arabic term. It is well known that Arabs were leaders in the field of lexicography for many centuries. Probably before the Middle Ages, they were the most prolific producers of lexicographic works and dictionaries. If we count the ways in which they presented their works we will find that there are different types of dictionaries produced by Arabs, basically three we may say. The first was the general type, arranged according to words, the second type was the thesauri, and the third type was terminology dictionaries. In the field of the dictionaries arranged according to word forms, there were at least six types. The first type, which was complied by the well known Al-Khalil ibn Ahmad, was arranged according to the pronunciation of the words, starting from the far end of the vocal tract moving towards the lips. It was called Al-Ayan, compiled in the eight century A.D. Later, came root dictionaries which also came in different formats. (1) some were arranged according to the beginning of the word. (2) Some were arranged according to the end of the words, i.e. rhyming dictionaries. (3) Others combined rhyming with the beginnings of words. (4) Others still used morphological analysis. Then there were dictionaries which were based on the full word without analysis into its root. So there were at least six types of arrangement that were followed by Arab lexicographers.

On the thesauri's side, we know that they started with 'special topic' dictionaries, such as dictionaries on horses, dictionaries on man, on insects, on arms etc., and many of those were common in the tenth century A.D. More comprehensive thesauri were complied in the twelfth century. For example, we have the best known thesaurus *Al-Mukhassas* by Ibn Sidah. It was complied in seventeen volumes. The author was an Arab borne in Andalusia, and he was a blind man. Other ones include *Fiqah Al-Lugha* by Al-Tha'alibi, *Adab Al-Kaatib* by Ibn Qutaybah ...etc.

Then there were also terminology dictionaries such as *Al-Wajiz* by Al-Ghazali, which dealt with Islamic law terms and A/- *Ta'Arifaat* (which had many terms of Islamic law in Arabic), *Miftath Al-Uloom* which dealt with linguistic and iter-

ary terminology, and another *Mifthah Al-Uloom* by al-Khawarizmi which contained terms in various scientific pursuits known at the time. However, unfortunately the energetic lexicographical work was not continued. Even in the present age we still find many problems in lexicography and a shortage in good dictionaries. So there is a need for more lexicographic work, especially in the area of terminology, despite the ongoing activities at various Arabization Centers.

Objective of BASM

The purpose of the BASM project can be summarised in the following points: We want to help Arabisation of science and technology in the following ways: (1) Compiling an extensive machine dictionary, and availing its contents to translators of scientific and technical works, translators of mass media, and readers of scientific and technical material in all the languages of BASM: Arabic, English, French and German. (2) Preparing for the scientific and technical part of a dictionary for machine translation or machine-aided translation. (3) To help in the dissemination of scientific and technical terminology on all levels: academic, specialist and layman. (4) Finally, one of our purposes is setting up an aid to Arab terminologists, which will help both in the coinage of new terms and, hopefully, in the standardisation and unification of Arabic terminology in the fields of science and technology.

These are some of the purposes for which BASM has been established. The history of BASM is summarised in the following:

History of BASM:

Before 1981 SANCST had carried out many feasibility studies and research on machine-aided translation and on terminology data banks. During the year 1981-82,I was on sabbatical leave in the United States doing research on the use of computers in language teaching and linguistic research, including machine translation. In 1983 the first proposal for the terminology data bank was presented to SANCST administration, and it was encouraged and approved. We designed the first fiche, or record format, in June of that year. Later, in July and August, we went on a visit to the International Standardization Organization in Geneva, Infoterm in Vienna and many databanks including LEXIS in Bonn, and TEAM in Munich, NORMATERM in France, and EURODICAUTOM in Luxembourg. On the basis of the results of these studies, we prepared a revised fiche late in August. In the meanwhile, we had already started collecting dictionaries, glossaries and other reference materials for the Terminology Data Bank. The computer department was busy in the preparation of software for inputting, sorting and retrieval, making use of SANCST-1, already in use for

National Databases at SANCST. Early September of 1983 we started by inputting around 600 terms and 145 concepts in Arabic, English, French and German for testing purposes, and we did many trial runs with some improvements on that system.

Present Status:

I will talk now about the record format and about the inputting, outputting and retrieval of data. I will also try to talk about the data collection status and hardware facilities.

Inputting at present is normally done online: i.e. through key-board terminal. As can be seen in the appendix, we have five pages; one for the header and one for each of the four languages. On the header there is the serial number, (01) Concept code (02) the subject code, (03) quality code, (04) the date of entry, (05) pool code. In (06) we have space for some notes in case we need those notes later on. We have fields (07-09) for information on the terminologist, the verifier and any other piece of information. In the Arabic part we have: (A00) the term, (A01) the full term, in case the term is an acronym or an abbreviation, such as BASM: then we will put the full term like al-Bank al-Aali al-Saudi lil-Mustalahaat, (A02) source of the term, (103) date of the source, (A04) equality codes, (A05) grammatical information, (A06) usage code, (A07) definition of the term or an illustrative example for its use, (A06) source of the definition, if different from source of term, (A09) synonymous term(s), (A10) an antonym if required, (A11) key word of multi-word terms, (A12) notes. (A13) the root of the one word terms. Basically, the same type of information is provided for the other languages with the exception of field (14) which is used for the base rather than the root of the word.

The quality code actually depends on the source of the term. If the source is dependable, well-known, then it will receive a higher number than the individual or an anonymous source. The information on dates is very important for updating purposes. Grammatical information includes part of speech, gender and number. Information on usage means, for example, in Arabic if we give the Arabic equivalent for 'computer' words like Nazzamah, or Rattaabah: this is a word for 'computer' in the North African region, whereas in the other eastern countries we have Al-Haasib, computer or Al-Hasoob, as it is called in Syria and some other places. We have the definition or illustrative usage of that particular term to help the user. Usually, in the synonym field we put the synonym and a code of its source. For example, if we have something like Hassib, we can give in this place words like Nazzaamah, or Hasoob, and give information about who uses those particular synonyms.

As I said earlier, inputting can be on-line, but it is also possible to use data on magnetic tape. Of course, it has to be converted in order for it to be compatible with out system.

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Retrieval: We have a system which allows two types of search. Free text searching, which is very important for terminological work and by field. When you ask for a certain term it will give you all the terms that include that particular word, so that we may verify the regularity of usage and consistency. We can also search by field such as by number, source, data, subject code, synonyms, and keywords; i.e., any one of the fields on the record can be used for the search.

Sorting can be made according to the terms in any one of the four languages of BASM; Arabic, English, French or German. So we can have a printout in which terms are Arabic adjusted, English adjusted, French adjusted, or German adjusted etc. We can also retrieve in different formats. There are six types of formatting which are possible in each search mode. F1 is defined to give full record information, F2 thru F6 can be defined by the user.

Hardware and Software

BASM runs on an IBM mainframe 4331 series, (main memory 4 megabites, auxiliary memory 5000 megabites). The operating system is VM/SP. The input/ output device is Al-Arabi bilingual terminal produced by Al-Mohandis company with SASO (Saudi Arabian Standards Organization) standard, which provides a full set of Arabic characters, including diacritic marks. The printer we are using is CI300. The software is database system SANCST-I developed in-house. The programming languages are PL 1 and Assembly. Retrieval software is the bilingual SANCST-I version 4 - again in-house developed. Remote access is possible. We are now working on remote entry facility. Communication is through COMTEXT and 3705 IBM communications.

Data in BASM and Library

We have already stored more than 11,600 concepts i.e. about 23,000 mainly Arabic and English terms, most of them with definitions.

In our library, which we are building, we have more than 500 references, including glossaries, dictionaries, (bilingual, monolingual, multilingual) and encyclopedias. Visits and contacts have been made with all Arab language academies, Arabization Coordination bureau of ALECSO and many other organizations and academic institutions for the purpose.

Future Plans:

1. Linguistic data: We would like to diversify our sources through cooperation with other databanks as well as direct linkage with Arab terminology agencies. We have already been negotiating cooperation with one of the largest data banks in the world, TEAM owned by Siemens. We are continuing acquisition of terminology sources and of translated works in scientific and technological fields, in addition to references on lexicography, terminology, translation and computational linguistics, which make up our special BASM library.

2. *Hardware and Software:* We are planning to improve our terminals for the purposes of adding accent marks in French and Umlaut in German, which are not available at present in our system. We would like to make improvements to speed up retrieval, and acquire or develop OCR or other optical scanning systems for inputting data in a faster way. We are studying the possibility of using video discs for storage of graphics and illustrations, something that has not been done yet in any of the other terminology data banks. This is to help the Arabic reader of scientific text. It will provide him with illustrations, graphs and formulas to help him visualise a particular concept, tool or term.

We have plans to improve the retrieval programs to allow text or term search, because at present we have free text search only and no search by term facility. We can have term search only if it is a multi-word term. But normally, you would get all the terms that include that particular word, because of the free-text search. We would like to have what may be called staged search; i.e. the user can ask for a term only: then he can ask for further and further information in different stages. We would also like to have more flexible search for Arabic text. At present, the Arabic term has to be exactly inputted in order to do the search. It should be made less rigid.

We would like to develop what is called inter-linear translation, or retrieval according to text. You enter a text into the machine. The machine reads the text,

and whenever it finds a term in its memory it would print out the translation alongside that particular word. This, of course, would facilitate translation tremendously.

The third project we have in mind is direct linkage of BASM with other data banks and institutions for data exchange, acquisition and dissemination, of course. In fact, the King Saud University has just decided to start a sister data bank in the field of humanities and in the fields of administrative and social sciences to complement the BASM project. So we will have humanities and social sciences under the sponsorship of King Saud University. We are also discussing cooperation with King Abdulaziz University that has a technical Arabisation Center which is one of the most active in the Arab world. It has its own automatic dictionary in Engineering fields. This is the type of cooperation that we are hoping to develop. We are also expecting around 35,000 terms in telecommunication, which are being worked on by the so called RAB project.

Clearing house: The last type of development we are working on is to develop an Arabisation clearing house facility, to provide information on Arabisation agencies, translation agencies and systems, Arabisation experts. Arabisation references (monolingual, bilingual, multilingual), including dictionaries, glossaries and encyclopedias etc.

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