

*An Informational Approach
To
Document And Intelligent
Retrieval Systems:
problems and alternatives for representing subjects in
the Qur'anic text*

By

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To my father whose day starts with the Qur'an and ends with the Qur'an. To him I owe my academic guidance and spiritual support, which to me were the backbone throughout my life and during the preparation of this thesis.

To my mother whose blessings and prayers for me were the staff that helped me to overcome many difficulties and strengthened me with more iman.

To all Muslim Scholars and Information Scientists who are devoting their lives to serve the cause of Islam and who believe that the Islamization of westernized Muslim thought is the only way ahead.

DECLARATION

I hereby certify that, except where otherwise acknowledged in the notes or references, this thesis is entirely the result of my own work and investigations.

I declare that this thesis has not already been accepted in substance for any degree, and is not being concurrently submitted in candidature for any degree.

ABSTRACT

This study is in response to the widespread dissatisfaction of Information Scientists in the Muslim World, who feel that Islamic literature deserved and required an Islamic classification scheme. Conceptually Muslim Information Scientists have attempted to establish an analytical subject bibliography which could help to develop a particular classification scheme. This has involved providing abstracts, directories and indexes to record the subject contents of all the materials relating to Islamic Studies. However, the classical Qur'anic exegeses and Hadith collections represent a particular problem to Information Scientists: indexing the Qur'anic exegeses and Hadith collections requires an initial operational list of subject headings of both the Qur'anic and Hadith texts.

This study is based on an investigation of the terminology in Qur'anic text for the purpose of designing a Qur'anic retrieval system. The study makes use of conceptual verses and words as partial examples for the required task. These examples are used to test the factors affecting the design at both manual and automatic levels. At the manual level – the stage of presenting the Qur'anic text in a printed form – the examples are used to examine the effects of Qur'anic terminology on the commentators and to see how it affects the performance of the retrieval system. Also the characteristics of the Arabic language, as represented in Qur'anic vocabulary, are examined against the problems known to be encountered in constructing an efficient information retrieval. On the automatic level – the stage of presenting the Qur'anic text on a screen – the examples are used to examine the possibility of the Qur'an, in its stylistic form, being processed by the computer.

The study is subdivided into six chapters. The first chapter outlines the demands that are placed upon Muslim Information Scientists. Also it gives a brief overview of the background to current researches on the Islamic literature, and shows the methodological framework used in the present study. The second chapter highlights the major philological, historical and theological aspects as indicated by various interpretations and tests the effect of these opinions on the performance of the retrieval system. The third chapter analyzes the function of vocabulary control as applied to the Qur'anic terminology and examines such a control in relation to features of the Arabic (Qur'anic) language. The fourth chapter examines the various treatments in the computational analysis area in relation to the Qur'anic style of calligraphy and structure. The fifth chapter presents the guidelines and recommendations to establish the Qur'anic retrieval system. Finally, the sixth chapter offers two examples of the Qur'anic retrieval system as it is applied to natural and social sciences.

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PREFACE

The transliteration system used in this study exemplifies the problem in the Qur'anic language in relation to information retrieval. Note that there is no agreement as to the transliteration of Arabic words into the English alphabet. Because the system must meet the needs of this study, and the non-Arabic reader has to identify at a glance the Arabic characters of each transliterated word, the presentation of this study uses the written transliterated word as represented by the characters in chart one (page 4), rather than phonetic transliteration. However, in order to avoid mistransliteration, Arabic references have been cited in Arabic at the end of the thesis.

On the other hand, a common problem in translation is that a word is distorted once translated, no matter how much care has been taken in finding the most suitable English equivalent. For instance, an Arabic word, depending on the context in which it is used, may suggest different conceptions to different persons; in addition, mistranslation sometimes affects the noblest of meanings. In fact, in most cases the word-for-word translation can be misleading rather than enlightening. Therefore, for the benefit of non-Arabic readers, the words and the verses of the specified examples have been quoted in English. However, after testing the available translations, the one that is used in this study is the translation of Khatib, M. *The Bounteous Koran*, Cairo, with slight changes as the study requires. Reference numbers of the Qur'anic verses are positioned at the end of each verse so that the reader can refer to the original script. The numbers are indicated by two part digits, the chapter number followed by the verse number. The corresponding chapter names are listed in chart two (page 5).

Appearance		Pronunciation	
CONSONANTS			
ا	'	Pronounced as English letter	"a" in alight
ب	<i>b</i>	Pronounced as English letter	"b" in bite
ت	<i>t</i>	Pronounced as English letter	"t" in tight
ث	<i>th</i>	Pronounced as English letters	"th" in theft
ج	<i>j</i>	Pronounced as English letter	"j" in just
ح	<i>h</i>	No English equivalent	
خ	<i>kh</i>	No English equivalent	
د	<i>d</i>	Pronounced as English letter	"d" in doubt
ذ	<i>dh</i>	Pronounced as English letters	"th" in that
ر	<i>r</i>	Pronounced as English letter	"r" in right
ز	<i>z</i>	Pronounced as English letter	"z" in zest
س	<i>s</i>	Pronounced as English letter	"s" in sight
ش	<i>sh</i>	Pronounced as English letters	"sh" in shout
ص	<i>ṣ</i>	No English equivalent	
ض	<i>ḍ</i>	No English equivalent	
ط	<i>ṭ</i>	No English equivalent	
ظ	<i>ẓ</i>	No English equivalent	
ع	'	No English equivalent	
غ	<i>gh</i>	No English equivalent	
ف	<i>f</i>	Pronounced as English letter	"f" in fight
ق	<i>q</i>	No English equivalent	
ك	<i>k</i>	Pronounced as English letter	"q" in quiet
ل	<i>l</i>	Pronounced as English letter	"l" in light
م	<i>m</i>	Pronounced as English letter	"m" in might
ن	<i>n</i>	Pronounced as English letter	"n" in night
ه	<i>h</i>	Pronounced as English letter	"h" in height
و	<i>w</i>	Pronounced as English letter	"w" in white
ي	<i>y</i>	Pronounced as English letter	"y" in yet
SHORT AND LONG VOWELS			
ا	<i>a</i>	Pronounced as English letter	"u" in but
ي	<i>i</i>	Pronounced as English letter	"i" in bit
و	<i>u</i>	Pronounced as English letters	"oa" in boat
ا	<i>â</i>	Pronounced as English letter	"a" in bat
ي	<i>î</i>	Pronounced as English letters	"ea" in beat
و	<i>û</i>	Pronounced as English letters	"oo" in boot

Chart 1: the English transliteration of the Arabic writing system.

No.	The names of the chapters		No.	The names of the chapters	
1	<i>sûrat al-fâtihah</i>	The Opening	58	<i>sûrat al-mujadalah</i>	The Disputation
2	<i>sûrat al-baqarah</i>	The Cow	59	<i>sûrat al-Hashr</i>	The Mustering
3	<i>sûrat âl 'Imrân</i>	The Family of 'Imran	60	<i>sûrat al-mumtahana</i>	The Tested one
4	<i>sûrat al-nisâ'</i>	The Women	61	<i>sûrat al-saff</i>	The ranks
5	<i>sûrat al-mâ'idah</i>	The Table	62	<i>sûrat al-Jum'ah</i>	Friday
6	<i>sûrat al-an'âm</i>	The Cattle	63	<i>sûrat al-munâfiqûn</i>	The Hypocrites
7	<i>sûrat al-a'râf</i>	The Ramparts	64	<i>sûrat al-Taghâbun</i>	Mutual Disillusion
8	<i>sûrat al-anfâl</i>	The Spoils	65	<i>sûrat al-ṭalâq</i>	The Divorce
9	<i>sûrat al-tawbah</i>	The Repentance	66	<i>sûrat al-tahrim</i>	The Prohibition
10	<i>sûrat Yûnus</i>	Jonah	67	<i>sûrat al-mulk</i>	The Sovereignty
11	<i>sûrat Hûd</i>	Hud	68	<i>sûrat al-qalam</i>	The Pen
12	<i>sûrat Yûsuf</i>	Joseph	69	<i>sûrat al-Hâqqah</i>	The Unquestionable
13	<i>sûrat al-ra'd</i>	The Thunder	70	<i>sûrat al-ma'ârij</i>	The Ascent
14	<i>sûrat Ibrâhîm</i>	Abraham	71	<i>sûrat Nûh</i>	Noah
15	<i>sûrat al-Hijr</i>	The Hijr	72	<i>sûrat al-jinn</i>	The Jinn
16	<i>sûrat al-naḥl</i>	The Bee	73	<i>sûrat al-Muzzammil</i>	The Mantled One
17	<i>sûrat al-isrâ'</i>	The Night Journey	74	<i>sûrat al-Muddathir</i>	The Enshrouded One
18	<i>sûrat al-kahf</i>	The Cave	75	<i>sûrat al-Qiyâmah</i>	The Resurrection
19	<i>sûrat Maryam</i>	Mary	76	<i>sûrat al-insân</i>	The Man
20	<i>sûrat Ta Hâ</i>	Ta Ha	77	<i>sûrat al-mursalât</i>	The Sent Angels
21	<i>sûrat al-anbiyâ'</i>	The Prophets	78	<i>sûrat al-Nab'</i>	The Tidings
22	<i>sûrat al-hajj</i>	The Pilgrimage	79	<i>sûrat al-nâzi'ât</i>	The Pluckers
23	<i>sûrat al-mu'minûn</i>	The Believers	80	<i>sûrat 'abasa</i>	Scowled
24	<i>sûrat al-nûr</i>	The Light	81	<i>sûrat al-takwîr</i>	The Coiling Up
25	<i>sûrat al-Furqân</i>	The Distinguisher	82	<i>sûrat al-infîṭâr</i>	The Cleavage
26	<i>sûrat al-sh'arâ'</i>	The Poets	83	<i>sûrat al-muṭafifîn</i>	The Skimpers
27	<i>sûrat al-naml</i>	The Ant	84	<i>sûrat al-inshiqâq</i>	The Splitting Asunder
28	<i>sûrat al-qaṣaṣ</i>	The Story	85	<i>sûrat al-burûj</i>	The Star Clusters
29	<i>sûrat al-'ankabût</i>	The Spider	86	<i>sûrat al-Târiq</i>	The Night Star
30	<i>sûrat al-Rûm</i>	The Romans	87	<i>sûrat al-A'la</i>	The Sublime
31	<i>sûrat Luqmân</i>	Luqman	88	<i>sûrat al-Ghâshiyah</i>	The Enveloping
32	<i>sûrat al-sajdah</i>	The Prostration	89	<i>sûrat al-fajr</i>	The Daybreak
33	<i>sûrat al-ahzâb</i>	The Confederate Clans	90	<i>sûrat al-balad</i>	The City
34	<i>sûrat Saba'</i>	Sheba	91	<i>sûrat al-Shams</i>	The Sun
35	<i>sûrat fâṭir</i>	Originator	92	<i>sûrat al-layl</i>	The Night
36	<i>sûrat Yâsîn</i>	Yasin	93	<i>sûrat al-duḥâ</i>	The Forenoon
37	<i>sûrat al-Sâfât</i>	The Rangers	94	<i>sûrat al-sharḥ</i>	The Dilatation
38	<i>sûrat sâd</i>	Sad	95	<i>sûrat al-tîn</i>	The Fig
39	<i>sûrat al-zummar</i>	The Hordes	96	<i>sûrat al-'alaq</i>	The Blood Clot
40	<i>sûrat ghâfir</i>	Forgiver	97	<i>sûrat al-Qadr</i>	The Decree
41	<i>sûrat fussilat</i>	Expounded	98	<i>sûrat al-bayyinah</i>	The Elucidation
42	<i>sûrat al-Shûrâ</i>	The Counsel	99	<i>sûrat al-zalzalah</i>	The Earthquake
43	<i>sûrat al-zukhruf</i>	The Ornamentation	100	<i>sûrat al-'âdiyât</i>	The War Steeds
44	<i>sûrat al-dukḥân</i>	The Smoke	101	<i>sûrat al-Qâri'ah</i>	The Rapping
45	<i>sûrat al-Jâthiyah</i>	The Crouching Down	102	<i>sûrat al-takâthur</i>	The Multiplication
46	<i>sûrat al-aḥqâf</i>	The Sand Dunes	103	<i>sûrat al-'aṣr</i>	The Time
47	<i>sûrat Muḥammad</i>	Mohammed	104	<i>sûrat al-humazah</i>	The Traducer
48	<i>sûrat al-Fath</i>	The Victory	105	<i>sûrat al-fil</i>	The Elephant
49	<i>sûrat al-Hujurât</i>	The Chambers	106	<i>sûrat Quraysh</i>	Quraish
50	<i>sûrat qâf</i>	Q	107	<i>sûrat al-mâ'ûn</i>	The Benevolence
51	<i>sûrat al-dhâriyât</i>	The Scattering	108	<i>sûrat al-Kawthar</i>	The Copious Provision
52	<i>sûrat al-Tûr</i>	Mount Tur	109	<i>sûrat al-kâfirûn</i>	The Unbelievers
53	<i>sûrat al-najm</i>	The Star	110	<i>sûrat al-naṣr</i>	The Succour
54	<i>sûrat al-Qamar</i>	The Moon	111	<i>sûrat al-masad</i>	The Plaited Rope
55	<i>sûrat al-Raḥmân</i>	The Most Benignant	112	<i>sûrat al-ikhlâs</i>	The Pure Religion
56	<i>sûrat al-Wâqî'ah</i>	The Occurrence	113	<i>sûrat al-falaq</i>	The Creation
57	<i>sûrat al-ḥadâd</i>	The Iron	114	<i>sûrat al-nâs</i>	The Men

Chart 2: the names and the numbers of the chapters of the Qur'an.

CHAPTER ONE

INTRODUCTION

1.1. Information Science: An Overview

All societies are information societies to the extent that no community can be imagined to exist without a pattern of information flow. Much of the information flow is personal communication; it is not intrinsically confined to speech or writing, since it could also include music, pictures, sketches, colours, traffic marks, highway and smoke signals, Morse codes, deaf and dumb signs, club badges, uniforms, bodily posture, nods of the head, facial expressions, eye movements etc. Moreover, in relation to cultural communication, information flow deals with institutions and governments.

For any system or organization to survive, an effective flow of information is needed; this has become even more important in contemporary societies. Some societies have had governments or quasi-official institutions laying down the regulation and control of information flow. These institutions vary in their objectives and aims; some provide information for specific groups, others are more concerned to provide it for a wider spectrum of society.

In handling their everyday services and operations, organizations and governments use information for different purposes, such as planning, management, and decision making. The advent of computer-based data processing enables institutions to deal with an immense flow of information. Information, therefore, is unquestionably an indispensable resource for all societies and organizations. The field which has emerged to study such information flow and the services rendered thereby is "information science". However, there are conflicting views about what constitutes information science, and about who is entitled to be referred to as an information scientist.

The discussion of such views is beyond the scope of this study.¹ Yet, the term "information science" still remains to be defined. The definition that has been adopted in the context of this study is the one put forward in a brochure by the American Society for Information Science (n.d.), Washington D.C.

"Information Science as a discipline seeks to create and structure a body of scientific, technological, and systems knowledge related to the information transfer chain...As a discipline, Information Science investigates the properties and behaviour of information, the focus that governs the transfer process, and the technology required to process information for optimum accessibility and use. Its interests include information representations in both natural and artificial systems: the use of codes for efficient message transmission, storage and recall; and the study of information processing devices and techniques such as computers and their programming systems.

It is an interdisciplinary field derived from and related to mathematics, logic, linguistics, psychology, computer technology, operations research, librarianship, the graphic arts, communications, management, and similar fields.

Information Science has both a pure science component, which inquires into the subject without regard to application, and an applied science, which develops services and products."

1.2. Information Science: An Islamic Context

It is an undeniable fact that dealing with the challenges of the information age requires a depth of understanding and an ability to work in integrated and co-operative modes. New fields have emerged and still others are emerging; the language barrier has always provided a delay factor, and the production of publications is increasing exponentially. Thus, it is a fact that no single body or organization can cater for all the various information needs of a nation and co-operation between organized national centres and international information services to complement one another is an essential part of any information policy.

Unfortunately, although all this seems elementary and self-evident, it is the regrettable situation today that many of the services dealing with the Islamic materials have developed in isolation from each other and the research output is

¹ For detailed reports and analyses see Wellisch, H. (1972), *From Information Science to Informatics: A Terminological Investigation*, *Journal of Librarianship*, 4(3), pp.157-187.

often repetitive, poor in quality and lacking in imagination. It is true that Muslim librarians have incorporated entirely new disciplines, such as Islamic economics and Islamic anthropology. It is also true that the Islamic legacy has been accumulated over 1400 years and that most of it has yet to be published. It is again true that there has been recently an exponential increase in the number of publications involving writings on Islam. Also it is a fact that the publication of books and articles on Islam and the Muslim world has been distributed in several languages, and there is also no doubt that the vehicle of information varies from manuscripts to microfiche, but the fact still remains that Muslim libraries and information services suffer from the lack of both the material resources to take stock of this all pervasive information explosion and of an intellectual strategy to overcome their bibliographic deficiency. On the one hand, the resources of the Islamic legacy and literature which originated in Muslim lands are hopelessly dispersed, and on the other hand, Muslim librarians are still wasting their energy and time, trying to adapt to the situation and to modify in a pragmatic way to fit in with the Western system.

It is worth noting that library science as developed in the West is bound to reflect the image of Western civilisation and ethos. Classification schemes, the rules of cataloguing, lists of subject headings and other techniques of library science employed to exploit the available material, all reflect the Western way of life. Thus to restrict "Islam" to the heading "religion" as the Dewey Decimal Classification scheme does, which reflects a Western conceptualization, violates the basic concept of Islamic principles. By listing disciplines such as "Islamic economics" and "Islamic anthropology" under the main headings Economics and Anthropology in a Library of Congress Subject Headings List, a whole array of new disciplines has emerged which is not looked at in these lists. Furthermore, if the names of Muslim women are entered by their surnames in catalogues, following Anglo-American catalogues rules, Muslim searchers will be unable to find them.

It is, therefore, the belief of certain Muslim information scientists as well as of many Muslim thinkers that Islam has its own world view of human affairs, and that, therefore, Islamic literature naturally has its own unique characteristics. However, when innovative systems of classification, bibliographical indexes and lists of subject headings and other adaptations of these tools are adopted in ways which fail to reflect properly the universality of Islam, the task of analysis and synthesis of the Islamic material becomes impracticable. The paramount intellectual problem and the most devastating argument against the indiscriminate amassing of information facing Muslim information scientists in establishing their own systems, stems from the attendant theory of knowledge. Knowledge, with a capital K, covers far more than a set of statements, it is, in fact, a theory leading to an authentic classification of Knowledge. In other words, the classification of Knowledge is so fundamental to Islamic epistemology that it constitutes the first point in the dialectical relationship between facts and value.

Muslim scholars of the classical period knew well that when information is divorced from its value context, it becomes meaningless. This fact was so obvious to the early Muslim thinkers that they propounded their own classification schemes before setting up their projects. The schemes of al-Kindî (died 252 A.H./866 A.D.)²; al-Fârâbî (died 339 A.H./951 A.D.)³; al-Khawârizmî (died 380 A.H./990 A.D.)⁴; Ibn Sînâ (died 428 A.H./1037 A.D.)⁵; al-Ghazâlî, (died 505 A.H./1112 A.D.)⁶; and Tâsh Kubrî Zâdah

² al-Kindî, Ya'qûb ibn Ishâq ibn al-Şabâh (n.d.), *kitâb mâhiyat al-'ilm wa aqsâmuh*, Cairo. [Arabic text, reproduced]

³ al-Fârâbî, Muḥammad ibn Muḥammad ibn Uzla' (1968), *iḥşâ' al-'ulûm*, Cairo. [Arabic text, reproduced]

⁴ al-Khawârizmî, Muḥammad ibn Aḥmad ibn Yûsuf (1981), *mafâtîḥ al-'ulûm*, Cairo. [Arabic text, reproduced]

⁵ Ibn Sînâ, al-Ḥusayn ibn 'Aliyy al-Bakhlî (1947), *al-ishârât wa al-tanbîhât*, Cairo. [Arabic text, reproduced]

⁶ al-Ghazâlî, Abû Ḥâmid Muḥammad ibn Aḥmad al-Ṭûsî (1982), *iḥyâ' 'ulûm al-dîn*, Beirut. [Arabic text, reproduced]

(died 968 A.H./1561 A.D.)⁷ must be regarded as the most notable. Al-Fârâbî and Ibn Sînâ, for instance, divided the sciences according to whether they were *nazariyyah* نظرية (theoretical) or *'amaliyyah* عملية (practical). Some, like al-Khawârizmî, divided them into *'ulûm 'Arabiyyah* علوم عربية (Arabic sciences) and *'ulûm a'jamiyyah* علوم أجنبية (foreign sciences). Others such as al-Ghazâlî adopted the bifurcation of all knowledge into *'ulûm naqliyyah* علوم نقلية (revelational sciences) and *'ulûm 'aqliyyah* علوم عقلية (rational sciences).

However, specific subject-based classification had been undertaken by Muslims much earlier than this general classification of Knowledge. For instance, the classification of Hadith in the first, second, and third century of Hijrah⁸ by Mâlik (died 93 A.H./ 712 A.D.) in his "*muwaṭṭa'*"⁹, al-Ṭayâlisî (died 204 A.H./820 A.D.) and Ibn Ḥanbal (died 241 A.H./855 A.D.) in their "*masânid*"¹⁰; al-Bukhârî (died 256 A.H./870 A.D.) and Muslim (died 261 A.H./875 A.D.) in their "*ṣiḥḥah*"¹¹; and Abû Dâwûd (died 275 A.H./889 A.D.), al-Tirmidhî (died 297 A.H./910 A.D.), Ibn Mâjah (died 275 A.H./889 A.D.), and al-Nasâ'î (died 303 A.H./916 A.D.) in their "*sunan*"¹². Specifically, Mâlik, al-Bukhârî, Muslim, Abû Dâwûd, Ibn Mâjah, al-Tirmidhî, and al-Nasâ'î arranged their collections on the basis of a juridical subject classification, while al-Ṭayâlisî and Ibn Ḥanbal classified their collections on the basis of the narrators.

⁷ Ṭāsh Kubrî Zâdah, Aḥmad ibn Muṣṭafâ ibn Khalîl al-Rûmî (1985), *miṣṭâḥ al-sa'âdah wa miṣbâh al-siyâdah fî ma'rifat al-'ulûm*, Beirut. [Arabic text, reproduced]

⁸ Hijrah refers to the migration of the Prophet Muhammad from Mecca to Medina in 622 A.D. This incident has been taken as the beginning of the Muslim era.

⁹ Mâlik, Mâlik ibn Anas (1987), *muwaṭṭa' al-Imâm Mâlik*, Beirut. [Arabic text, reproduced]

¹⁰ al-Ṭayâlisî, Sulaymân ibn Dâwûd ibn al-Jârûd (n.d.), *musnad Abû Dâwûd*, Beirut; Ibn Ḥanbal, Aḥmad (1958), *al-musnad*, Cairo. [Arabic text, reproduced]

¹¹ al-Bukhârî, Abû 'Abd Allah Muḥammad ibn Ismâ'il (n.d.), *ṣaḥîḥ al-Bukhârî*, Istanbul; Muslim, Abû al-Ḥusayn Muslim ibn al-Ḥajjâj al-Qushayrî (n.d.), *saḥîḥ Muslim*, Cairo. [Arabic text, reproduced]

¹² Abû Dâwûd, Sulaymân ibn al-Ash'ath al-Sâgistanî (1953), *sunan Abû Dâwûd*, Cairo; al-Tirmidhî, Abû 'Isâ ibn Muḥammad ibn 'Isâ (n.d.), *sunan al-Tirmidhî*, Beirut; Ibn Mâjah, Abû 'Abd Allah Muḥammad ibn Yazîd al-Qazwînî (n.d.), *sunan Ibn Mâjah*, Istanbul; al-Nasâ'î, Abû 'Abd al-Raḥmân (1986), *sunan al-Nasâ'î*, Halab. [Arabic text, reproduced]

With the invention of printing, the philosophic classification of Knowledge became confused with the classification of books. In Hulme's words, this is because:

"Books ... are concrete aggregates of facts selected from the common stock of knowledge, and are produced under the laws of supply and demand to meet the wants of the various bodies of community. The result is a welter of cross classifications and of overlapping areas of definition for the reception of which the framework of philosophic classification is quite insufficient."¹³

Hulme's alternative idea of classification in a scheme of classes and subdivisions is justified and involves the establishment of real classes of literature on particular subjects.¹⁴ This means that the classification scheme is neither philosophically nor theoretically based, but empirically derived for the subjects of the publications. By any standards, bibliographical guides ought to belong to the least ideology-infected genre of academic writings. However, bibliographies present serious problems of bias that are structural and not personal. For instance, the first important contribution among Islamic bibliographies "*al-fihrist*"¹⁵ was divided into ten areas of bibliographical Islamic literature: Qur'an, grammar, history and belleslettres, poetry, scholastic philosophy, law, philosophy and science, legends and fables, sects and creeds, and alchemy. The author, Ibn al-Nadîm (died 385 A.H./995 A.D.), who was a bookseller, divided the work into chapters, each dealing with a particular subject, its development, and its authors whom he had either met or heard about. Some 650 years later a monumental work of Islamic bibliography was compiled by Hâjjî Khalîfah (died 1067 A.H./1657 A.D.). For his "*kashf al-zunûn 'an asâmî al-kutub wa al-funûn*", Hâjjî Khalîfah spent some twenty years collecting the materials. During this period the book was compiled on the basis of alphabetical lists of titles of all the works written in Arabic, Persian and Turkish which he had personally seen or was informed about. For each title he gives

¹³ Hulme, E. W. (1911), *Principles of Book Classification*, Library Association Records, 13, pp.446-447.

¹⁴ *Ibid.*

¹⁵ Ibn al-Nadîm, Muḥammad ibn Ishâq (1978), *al-fihrist*, Beirut. [Arabic text, reproduced]

details of the author, date of compilation, and criticisms that the work had received.¹⁶

Hâjjî Khalîfah's attempt has continued in the early twentieth century in the monumental works of Brockelmann's *Geschichte der Arabischen Literatur*, Sezgin's *Geschichte des Arabischen Schrifttums* and Storey's *Persian Literature*. However, Brockelmann's work was published originally between the period 1898-1902, and three supplementary volumes appeared between the years 1937 and 1942. The first and the second provide a list of surviving Arabic manuscripts from printed catalogues of collections, while the third of them treats modern Arabic literature since the period of Napoleon's invasion of Egypt. Likewise, Sezgin's work which appeared in 1967 dealing with Arabic manuscripts, have issued several volumes covering Qur'anic sciences, theology and history, some of the natural sciences and poetry of the period before 430 A.H. Unlike Brockelmann who organized his material on a chronological basis, Storey arranged his subject-wise. However, Storey's work covered material in Persian language, in which notes on the principal editions, translations and criticisms of the individual writers have been provided.¹⁷

It was in 1799 that the first coverage of Islamic studies published in the West was presented by Schnurrer in *Bibliotheca Arabica*. Its second edition (1811) provides a subject classification, with detailed annotations and a chronological index of works published in Europe during the period 1505-1810.¹⁸ This is followed by Zenker's *Bibliotheca Orientalis* which purported to give the titles of all Arabic, Persian and Turkish books following the invention of printing.¹⁹

¹⁶ Hâjjî Khalîfah, Muṣṭafâ ibn 'Abd Allah al-Qusṭanṭînî (n.d.), *kashf al-zunûn 'an asâmi al-kutub wa al-funûn*, Baghdad. [Arabic text, reproduced]; see also Gibb, H. (1960), *Encyclopedia of Islam*, vol.I, p.1198.

¹⁷ Brockelmann, C. (1898-1902), *Geschichte der Arabischen Literatur*, Berlin, Supplementbände I-III, Leiden 1937-1942, 2.den Supplementbände Angepasste Affl., Leiden 1943, 1949; Sezgin, F. (1967), *Geschichte des Arabischen Schrifttums*, Leiden; and Storey, C. A. (1927 -), *Persian Literature*, London, in progress.

¹⁸ Schnurrer, C. F. (1799-1811), *Bibliotheca Arabica: Actum Nunc Atque Integram*, Leipzig.

¹⁹ Zenker, J. T. (1840), *Bibliotheca Orientalis*, Leipzig.

In fulfilling his ambition to continue Schnurrer's work, Chauvin compiled *Bibliographie des Ouvrages Arabes a× Relatifs aux Arabes Publie's dans l'Europe Chrétienne de 1810 á 1885*, in twelve volumes, published between the years 1892 and 1922. The tenth volume lists some 400 entries relating to the Qur'an and Hadith.²⁰ As a cumulative bibliography, *Index Islamicus* was first published in 1958. In *Index Islamicus* Pearson has attempted to list the periodical articles for the fifty years from 1906 to 1955. In 1977, the *Quarterly Index Islamicus* was introduced as a recurrent series covering the growing volume of the Islamic literature.²¹

As far as Muslim Organizations go, the Organization of Islamic Conferences' (OIC) Research Centre for Islamic History, Art and Culture (IRCICA) has inaugurated a bibliographical control for published translations of the Qur'an in all languages.²² Efforts to cope with the information flow in the Muslim world have been made by two secondary sources magazines: the quarterly *Muslim World Book Review*, and the annual *majallat al-Muslim al-mu'âsir*.²³ The former concentrates on the publications in European languages, while the latter presents a combination of English and Arabic language materials. The two magazines cover in its entirety the bibliographical information available through Muslim sources, encompassing books, articles, dissertations, and conferences. More recently the production of similar, somewhat specialized, bibliographies, dissertation indexes, citations, and research abstracts has been undertaken by Sattar and Sajjadur Rehman²⁴ on Islam; Usmani²⁵, Ishâq²⁶, and Anees²⁷ on

²⁰ Chauvin, V. (1892-1922), *Bibliographie des Ouvrages Arabes a× Relatifs aux Arabes Publie's dans l'Europe Chrétienne de 1810 á 1885*, Paris.

²¹ Pearson J. D. (1958), *Index Islamicus*, Cambridge. Supplementary after 1977, to be found in publications under the auspices of the Royal Academy for Islamic Civilization.

²² Binark, Ismet and Eren, Halit; comp. (1986), *World Bibliography of Translations of the Meanings of the Qur'an: Printed Translations 1515-1980*, Istanbul: Research Centre for Islamic History, Art and Culture.

²³ The Islamic Foundation, *The Muslim World Book Review*, U.K., Leicester, in progress. *Dâr al-Buḥûth al-'Ilmiyyah, majallat al-Muslim al-mu'âsir*, Kuwait, in progress.

²⁴ Sattar, A. and Sajjadur Rehman (1985), *Coverage of Islamic Literature in Selected Indexing Services*, *International Library Review*, 17, pp.357-370.

²⁵ Usmani, M. A. (1984), *Islamic Studies - Literature on Qur'an in English Language: A Bibliography*, Karachi.

Qur'an; Anees and Athar²⁸ on Sîrah and Hadith; Denffer²⁹ on Hadith; and Sluglett³⁰ and Usmani and Siddiqui³¹ on theses and dissertations on Islam. Finally, some preliminary work on institutional development has been covered by Anees³² and Anwar.³³

From the foregoing state-of-the-art review of information management for Islamic literature it is heartening to note that in recent years there has emerged an increasing awareness among Muslim individuals and organizations of the need to initiate some sort of bibliographical control. However, these efforts have been very limited both in their scope and their method. The material is varied and wide, new disciplines and languages have emerged, and the publication of books and articles on Islam is extensive and is now beyond the control of individual scholars in a given discipline. Global control of the Islamic material, therefore, cannot be conceived without the help of an integrated circuit of services or multi-national organizations. More than a decade ago, Pearson called for a "total bibliographic control of Islamic Studies". However, his argument rests on Western assumptions in dealing with Islamic bibliography.³⁴ A few years later, similar concern was expressed by Anwar who has suggested the establishment of a "World Islamic Bibliography Centre". Unfortunately, he did not recommend a conceptual design for the realization of

²⁶ Ishâq, 'Aliyy Shawâkh (1984), *mu'jam muşannafât al-Qur'ân al-karîm*, Riyadh. [Arabic text]

²⁷ Anees, M. A. (1985), *Islamic Studies-Publish and Perish? Book and Periodical Citations on tafsir al-Qur'ân in Western languages*; *Muslim World Book Review*, 5(2), pp.55-68.

²⁸ Anees, M. A. and Athar, A. N. (1986), *Guide to Sira and Hadith Literature in Western Languages*, London.

²⁹ Denffer, Ahmad (1981), *Literature on Hadith in European Languages: A Bibliography*, U.K.; Denffer, Ahmad (1982), *Hadith: A Selected and Annotated Guide to Material in the English language*, U.K.

³⁰ Sluglett, P. (1983), *Theses on Islam, the Middle East and North-West Africa (1880-1978)*, Accepted by Universities in U.K. and Ireland, London.

³¹ Usmani, M. A. and Siddiqui, A. H. (1985), *A Bibliography of Doctoral Dissertations on Islam*, Karachi.

³² Anees, M. A. (1983), *Utilization of Computer Technology in Islamic Studies*, *Search: Journal of Arab and Islamic Studies*, 4(1-2), pp.73-76.

³³ Anwar, M. A. (1985), *Information Services in Muslim Countries: An Annotated Bibliography of Expert Studies and Reports on Library, Information and Archive Services*, London.

³⁴ Pearson, J. D. (1975), *Towards Bibliographic Control of Islamic Studies*, *British Society for Middle Eastern Studies Bulletin*, 2(2), pp.112-116.

such a universal bibliographical control of Islamic literature.³⁵ In the past few years, Muslim scholars have paid some attention to evolving new classification schemes. Earlier Abû al-Nûr developed a scheme of his own based on a literary warrant of publication in Arabic language. This was followed by Sardar who worked out a scheme based on a general idea taken from Ranganathan's Colon Classification. But a review of these two schemes shows that neither of them can be used by all Islamic countries. Abû al-Nûr initiated his scheme on the basis of the Arabic alphabet and Indian numbers, while Sardar based his on the English alphabet, so that neither is suitable for use in the majority of Muslim countries.³⁶ Sabzwari, who listed at least nine other different classification schemes that had either been proposed or were already in use in different Muslim countries and universities, concluded that "none of these could be adopted in toto by all the Islamic countries".³⁷ Instead, he suggested a Universal Islamic Classification, which has not yet been subjected to full discussion or analysis.

Therefore, it is the belief of the author of this thesis that the basic issue in initiating a method of global control of Islamic materials, both conceptually and physically, is the need to establish a full subject index of the Hadith collections and the Qur'anic text. Unless such indexes are provided, the subject-content of the rich yet diffused literature of the Islamic legacy will remain confused in terms of classification criteria. The argument is based on two points: first, that when authors write in the field of Islamic Studies, they are used to make reference to Qur'anic verses and Hadith traditions in order to justify their claims or to prove their points. This however requires two things: authors have either to refer to the Qur'anic and Hadith exegeses or they have to depend on their

³⁵ Anwar, M. A. (1983), *Towards a Universal Bibliographic System for Islamic Literature*, *International Library Review*, 15(3), pp.257-261.

³⁶ Abû al-Nûr, 'Abd al-Wahâb (1973), *dirâsah fî manhaj i' dâd anżimat al-taşnîf ma' taḥbîqih fî i' dâd nizâm taşnîf lil-dîn al-Islâmî*, Cairo. [Arabic Text] Sardar, Z. (1979), *Islam: Outline of a Classification Scheme*, London.

³⁷ Sabzwari, G. A. (1982), *Universal Islamic Classification*, *Pakistan Library Bulletin*, 13(2), p.16.

own understandings and interpretations. If authors do refer to the Qur'anic and Hadith exegesis, they probably would have difficulty in locating their information because traditional exegeses follow the same arrangement of both the Qur'anic text and the Hadith collections and without a proper subject indexing to gather the scattered related material, they would have no chance to reach all the material they need. However, if authors do depend on their own understanding and interpretation they may need to review all the material dealing or relating to their request. This requires instantaneous access to the secondary sources viz, books, articles, dissertations, and reports, which the user can find in bibliographies, periodicals, dissertations' indexes and conference proceedings. Without these material being classified in a systematic way whereby the author may find what he needs without inconvenience, the user will again reach nowhere. By contrast, in seeking access to the primary sources viz, the Hadith collections and the Qur'anic texts themselves, the task still needs an enhanced subject index to gather the scattered related subjects. The second argument to emerge is that the writings of these authors themselves, from the point of view of the librarians, make reference to Qur'anic and Hadith subjects and in order to classify it on shelves they are in need of an analytical subject classification scheme to place these publications in their most suitable locations. Again without a proper classification scheme, searchers will not find their requests easily.

Therefore, the proposed system requires as a first step the establishment of Qur'an and Hadith retrieval systems; this means analyzing contemporary Arabic-Islamic writings together with the Islamic legacy through the combined use of two retrieval systems. Through this treatment, the generation of a multi-use classification scheme of literature dealing with Qur'an and Hadith topics will become a preliminary step in the task of establishing a bibliographical framework for global control of Arabic-Islamic literature dealing with the Qur'an and Hadith literature. Both the classification scheme and the

bibliographical base classified according to micro-classification classes of the resources of the Islamic legacy and civilisation in languages other than Arabic as well as those which originated in the Muslim lands can be brought to an integration system that will form the base of a universal Islamic classification scheme and a universal Islamic bibliography. The conception of a micro-classification of the classical and contemporary Arabic writings will result in a framework for an integration system that will form the base of a national Arabic classification scheme and a national Arabic bibliography. Figure 1-1 draws the steps in this integration system and the relation between its parts.

But we must still start with the Hadith collections and the Qur'anic text. The Hadith collections that is, for example, the works by Mâlik, al-Bukhârî, Muslim, Abû Dâwûd, Ibn Mâjah, al-Tirmidhî, al-Nasâ'î, al-Ṭayâlisî and Ibn Ḥanbal are not without limitations; in seeking a Hadith, in many cases the user must first have prior knowledge of the narrator or else guess which chapter contains the Hadith. This has been appreciated by many scholars, notably Wensinck³⁸ and 'Abd al-Bâqî³⁹ both of whom initiated an index for the above mentioned works on Hadith. Wensinck compiled a comprehensive word index, while 'Abd al-Bâqî compiled a detailed subject index. An analysis of these works is beyond the scope of this study and must remain an area of future investigation. As regards to the Qur'anic verses, their arrangement does not follow any chronological order, and the subjects are scattered throughout the texts. Several notable works have been compiled, both manually and automatically, in order to establish both a word and subject index. However, these works were not undertaken for the purpose of an analytical subject classification, but instead, they were efforts undertaken for their own purposes. An analysis of these works will be made in the following section.

³⁸ Wensinck, A. J. (1983-69), *Concordance Et Indices De La Traditionnelle Musulmane*, Leiden. [Arabic Text]

³⁹ 'Abd al-Bâqî, Muḥammad Fû'âd (1978), *al-iftâḥ kunûz al-sunnah*, Lahore. [Arabic text]

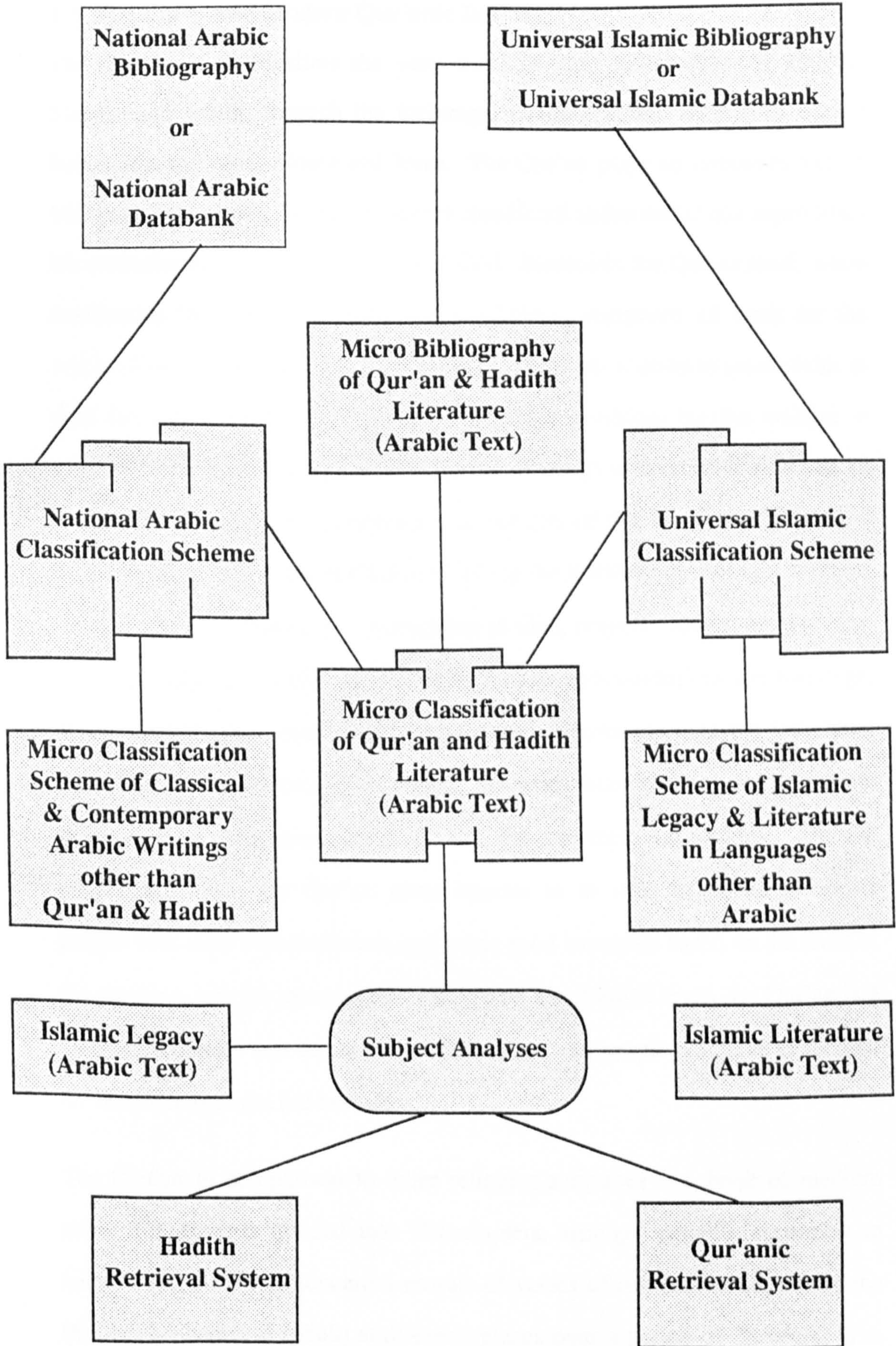


Figure 1-1: a chart representing the proposed integrated system for both conceptual and physical control of the Islamic literature.

1.3. The Early And Modern Qur'anic Indexes

The Qur'an is to Muslims the very word of God revealed to the Prophet Muhammad (pbuh) through the archangel Gabriel, in the manner of earlier books sent to David, Moses and Jesus. The Qur'an plays an important role in Muslims' lives. Only the Arabic text is considered authoritative and appropriate for recitation and revealing the word of God. Moreover, the Qur'an itself, while reaffirming the truth of previous revelations, comprises all truth for the whole of mankind for all times. In furthering this aim it seeks to create faith in God through revelation of His signs; it makes provision for the welfare – material, moral, and spiritual – of mankind. Through such promotion of human welfare in every sphere, it expounds and explains all that is, or may be, needed by mankind for complete fulfilment of life: in the matter of devotion, it explains the five pillars of Islam, viz , submission to God, prayers, fasting, alms giving, and pilgrimage. On sociological matters, it deals with institutions like marriage, divorce, inheritance, care of the orphans and widows etc. At the individual level, the Qur'an teaches good conduct, discusses Islamic ethics and lays down rules guiding inter-relationships among the members of society. On the educational level, the Qur'an gives lessons as to what happened to earlier people who were evil characters, and other good examples based on the lives of the prophets and the messengers. Finally on the spiritual level, the Qur'an is a constant reminder that life in this world is short and people will have to account for their deeds in the life hereafter.

The Qur'an in comparison to other religious scriptures is a book of medium size. The book is divided into 114 chapters, arranged roughly according to length. All these chapters are a mosaic of verses of revelations uttered by the Prophet Muhammad (pbuh) at different places over a period of 23 years. The arrangement of the verses does not follow any chronological order, and the subjects are scattered throughout its text yet showing a unique kind of unity and homogeneity. In view of the absence of mass printing facilities, mankind

subsequently became accustomed to, the method adopted for safeguarding the revelation and the tradition was to commit it to a person's memory. In that sense the scattering of subjects over the Qur'anic texts was not an obstacle for the memory retrieval. The amount of information that can be passed on in this way, however, is limited. Moreover, society began to make advances when information of various kinds came to be recorded in a relatively permanent form, a factor which could be seen as a substitute for the human memory. So instead of the store of information recorded in a person's memory, we now have the printed copy of the Qur'an; instead of a natural memory there is an artificial memory: the index.

In this connection, four eras have to be considered in respect of Qur'anic indexes. The first of these eras was the polymath era,⁴⁰ which represents the time when the sum total of human knowledge was sufficiently small for one man to be able to comprehend it all. Throughout history, generations of Muslim scholars have devoted themselves to interpreting the Qur'anic text. However, because interpretation is dependent upon the meanings behind words, this led to the use of linguistic and related disciplines. Undoubtedly, this was due to the tremendous need felt by Muslims to know the Arabic language of the Qur'an, which became the official language of established Islamic states. Consequently, the study of Arabic grammar was intimately linked with Qur'anic analysis and especially with the science of *al-qirâ'ât* القراءات (readings). By the end of the first century of the Hijrah (the eighth century A.D.), grammarians organized large scale linguistic surveys to collect the largest possible amount of linguistic data and then refined and systematized the earlier generation's methods of analysis. From these surveys, they were able to pronounce the exact linguistic structure and its effect on the communicators of the language in their efforts to

⁴⁰ The term has been borrowed from Foskett, A. J. (1982), *The Subject Approach to Information*, London, p.3.

capture its various representations which must indeed be taken into account in formalizing the structure of the Arabic language.⁴¹

As a consequence of these formalizations, attempts to compile the Qur'anic contents were subjected to further analysis and this gave rise to the study of a variety of issues as, for example, in readings and modes of recitations taken up by Ibn al-Jazrî (died 833 A.H./1430 A.D.)⁴² in his "*al-nashr fî al-qirâ'ât al-'ashr*" and al-Dânî (died 444 A.H./1052 A.D.)⁴³ in his "*kitâb al-taysîr fî al-qirâ'ât al-sab'*"; synonyms and homographs by al-Damaghânî (died 478 A.H./1085 A.D.)⁴⁴ in his "*qâmûs al-Qur'ân*" and by al-Tha'âlibî (died 429 A.H./1038 A.D.)⁴⁵ in his "*al-ashbâh wa al-nazâ'ir*"; abrogation and abrogated verses by Ibn al-Bârizî (died 738 A.H./1337 A.D.)⁴⁶ in his "*nâsikh al-Qur'ân al-'azîz wa mansûkhuh*" and by Ibn Du'âmah (died 117 A.H./735 A.D.)⁴⁷ in his "*al-nâsikh wa al-mansûkh fî kitâb Allah ta'âlâ*"; ambiguities by al-Aşfahânî (died 502 A.H./1109 A.D.)⁴⁸ in his "*mu'jam mufradât alfâz al-Qur'ân*" and by Ibn 'Abd al-Salâm (died 660 A.H./1262 A.D.)⁴⁹ in his "*fawâ'id fî mushkil al-Qur'ân*"; occasions of revelations by al-Suyûtî (died 911 A.H./1505 A.D.)⁵⁰

⁴¹ Ibn Khaldûn, 'Abd al-Rahmân Muḥammad (1981), *muqadimat Ibn Khaldûn*, Beirut, pp.437-440. [Arabic text, reproduced]

⁴² Ibn al-Jazrî, Muḥammad ibn Muḥammad, (1926), *al-nashr fî al-qirâ'ât al-'ashr*, Damascus. [Arabic text, reproduced]

⁴³ al-Dânî, 'Uḥmân ibn Sa'id, (1984), *kitâb al-taysîr fî al-qirâ'ât al-sab'*, Beirut. [Arabic text, reproduced]

⁴⁴ al-Damaghânî, al-Ḥusayn ibn Muḥammad (1983), *qâmûs al-Qur'ân*, Beirut. [Arabic text, reproduced]

⁴⁵ al-Tha'âlibî, 'Abd al-Malik ibn Muḥammad, (1984), *al-ashbâh wa al-nazâ'ir*, Cairo. [Arabic text, reproduced]

⁴⁶ Ibn al-Bârizî, Ḥibat Allah ibn 'Abd al-Rahîm (1988), *nâsikh al-Qur'ân al-'azîz wa mansûkhuh*, Beirut. [Arabic text, reproduced]

⁴⁷ Ibn Du'âmah, Qatâdah al-Sadûsî, (1988), *al-nâsikh wa al-mansûkh fî kitâb Allah ta'âlâ*, Beirut. [Arabic text, reproduced]

⁴⁸ al-Aşfahânî, al-Râghib Abû al-Qâsim Ḥusayn ibn Muḥammad (n.d.), *mu'jam mufradât alfâz al-Qur'ân*, Beirut. [Arabic text, reproduced]

⁴⁹ Ibn 'Abd al-Salâm, al-'Izz, (1982), *fawâ'id fî mushkil al-Qur'ân*, Jiddah. [Arabic text, reproduced]

⁵⁰ al-Suyûtî, Jalâl al-Dîn 'Abd al-Rahmân, (1983), *lubâb al-nuqûl fî asbâb al-nuzûl*, Beirut. [Arabic text, reproduced]

in his "*lubâb al-nuqûl fî asbâb al-nuzûl*" and by al-Wâhidî (died 468 A.H./1076 A.D.)⁵¹ in his "*asbâb nuzûl al-Qur'ân*"; metaphors by Abû 'Ubaydah (died 209 A.H./824 A.D.)⁵² in his "*majâz al-Qur'ân*"; similes by Ibn Nâqiyâ (died 485 A.H./1092 A.D.)⁵³ in his "*al-jumân fî tashbihât al-Qur'ân*"; repetitions by al-Asâdabâdî (died 415 A.H./1024 A.D.)⁵⁴ in his "*mutshâbih al-Qur'ân*" and by al-Karamânî (died around 500 A.H./1107 A.D.)⁵⁵ in his "*asrâr al-tikrâr fî al-Qur'ân*"; and norms of readings by Ibn al-Anbârî (died 328 A.H./940 A.D.)⁵⁶ in his "*kitâb idâh al-waqf wa al-ibtidâ' fî kitâb Allah*".

This vast literature of specialized exegesis have served as a crude form of thematic accession to *'ulûm al-Qur'ân* علوم القرآن (the sciences of the Qur'an) as well as a systematic expression of the relevance of the Qur'an for issues of everyday life. This could of course be of purely historical significance, but it may also be regarded from the technical point of view as a first attempt at indexing.

The second of these eras was the problem-oriented era,⁵⁷ which started in effect with the development of printing. The technology of writing and illustrating instruments advanced considerably during this period which lasted until well into this century. This era was characterized by the need to solve particular problems, using whatever disciplines might be necessary, regardless of whether they belonged together or not. This could probably be referred to as the beginning of word indexing. As a matter of fact, the term "index" has come

⁵¹ al-Wâhidî, Abû al-Ḥasan 'Aliyy, (1983), *asbâb nuzûl al-Qur'ân*, Jiddah. [Arabic text, reproduced]

⁵² Abû 'Ubaydah, Mu'ammâr ibn al-Muthannâ (1954), *majâz al-Qur'ân*, Cairo. [Arabic text, reproduced]

⁵³ Ibn Nâqiyâ, Abû al-Qâsim 'Abd Allah (1974), *al-jumân fî tashbihât al-Qur'ân*, Alexandria. [Arabic text, reproduced]

⁵⁴ al-Asâdabâdî, 'Abd al-Jabbâr ibn Aḥmad, (1969), *mutshâbih al-Qur'ân*, Cairo. [Arabic text, reproduced]

⁵⁵ al-Karamânî, Muḥammad ibn Ḥamzah ibn Naṣr (1978), *asrâr al-tikrâr fî al-Qur'ân*, Cairo. [Arabic text, reproduced]

⁵⁶ Ibn al-Anbârî, Muḥammad ibn al-Qâsim ibn Muḥammad (1971), *kitâb idâh al-waqf wa al-ibtidâ' fî kitâb Allah*, Damascus. [Arabic text, reproduced]

⁵⁷ Foskett, *op.cit.*, p.2.

originally from the Latin meaning "he who, or that which, points the way". Later, in the sixteenth century, it became fully anglicized and then acquired its literary sense⁵⁸. Literally, the term "index" means that which shows, indicates, manifests, or discloses; a token or indication."⁵⁹ Technically, "an index is a systematic guide to items contained in or concepts derived from a collection. These items or derived concepts are represented by entries arranged in a known or stated searchable order, such as alphabetical, chronological or numerical"⁶⁰.

However, in the broader sense of the word index, the first European attempt to index the Qur'an namely *Concordantia Corani Arabicus* was undertaken by the German Orientalist Gustav Flügel in 1812. This is one of the most concise and comprehensive Qur'anic concordances ever compiled by an European.⁶¹ Not surprisingly, of course, the first attempt to index the Qur'an was undertaken by an Orientalist. The perceived need to have easy access to the contents of the Qur'an cannot be questioned and this initial attempt to index the Qur'an was quite understandable. In attempting to compile the work, Flügel arranged the words alphabetically according to their roots. Unfortunately, a major disadvantage of Flügel's concordance is shown in its rendering of the words according to their roots, since he followed no systematic criterion nor did he adopt any well known arrangement. This is why many of the words have been rendered wrongly in terms of their original roots. Also, in his compilation of the concordance he followed a self-adopted verse numbering system which he derived from a special copy of the Qur'an which he had prepared specifically for his concordance. This again offered an unfamiliar verse number to the user, in comparison to the generally used copy of the Qur'an. These two

⁵⁸ Knight, G. N. (1980), *Indexing, The Art of*, London, p.17.

⁵⁹ Webster's International Dictionary, 2nd ed.

⁶⁰ Rothman, J. (1974), *Index, Indexer, Indexing*, in: *Encyclopedia of Library and Information Science*, 11, p.286.

⁶¹ Flügel, G. (1812), *Concordantia Corani Arabicus*, Leipzig. [German text]; Also published under the title *Concordance of the Koran*; compiled alphabetically and according to the roots of words, Lahore, 1978. [English Text]. Known in Arabic as *nujûm al-furqân fî aṭrâf al-Qur'ân*.

disadvantages have been overcome by 'Abd al-Bâqî's "*al-mu'jam al-mufahras li-alfâz al-Qur'ân al-karîm*"⁶². In his work, 'Abd al-Bâqî has translated Flügel's concordance into Arabic and noted the errors in words rendered by Flügel according to their original roots. He also revised the verse numbers and adopted the system used in the structured King Fu'ad copy of the Qur'an. Unquestionably 'Abd al-Bâqî's concordance has become one of the most common, widespread, and admired works in the Muslim world until now. However, some notable disadvantages can also be seen in his concordance. These are as follows: First, the searchers have to make an intellectual effort to reduce the natural form of the words into their roots. For instance, searching for a word *mâ'* ماء (water) requires that the word be rendered into the root *m-w-h* م - و - ه. This process requires a competent knowledge of Arabic grammar. Secondly, words that have different forms in their derived state can be incorrectly reduced to an original root. For instance, the word *hûdan* هودًا, may be reduced to the root *h-w-d* ه - و - د in one dictionary, while the word *yahûd* يهود in the same dictionary may be reduced to the root *y-h-d* ي - ه - د.⁶³ Thirdly, the concordance is constructed on the basis of three radical roots. This leaves the two, four, and five radical roots to positions not clear to the searcher. Fourthly, the reduction of the words to their root forms is extended to names, such as *Mûsâ* موسى (Moses) which is reduced to *m-w-s* م - و - س, a controversial and doubtful reduction.

Other works similar to 'Abd al-Bâqî's concordance are *hidâyat al-raḥmân li-alfâz wa âyât al-Qur'ân* by al-Bindâq⁶⁴ and *mu'jam al-Qur'ân* by al-Maṣrî,⁶⁵ who follow 'Abd al-Bâqî's arrangement, though their works are distinguished by their indexes and supplements. In addition, two Qur'anic

⁶² 'Abd al-Bâqî, Muḥammad Fû'âd (1984), *al-mu'jam al-mufahras li-alfâz al-Qur'ân al-karîm*, Istanbul. [Arabic text]

⁶³ *Ibid.*, p.739 & p.775.

⁶⁴ al-Bindâq, Muḥammad Ṣâlîḥ (1981), *hidâyat al-raḥmân li-alfâz wa âyât al-Qur'ân*, Beirut. [Arabic text]

⁶⁵ al-Maṣrî, 'Abd al-Ra'ûf (1948), *mu'jam al-Qur'ân: qâmûs al-mufradât al-Qur'âniyyah wa ḡarîbahâ*, Cairo. [Arabic text]

concordances have also been produced, viz , *mu'jam alfâz al-Qur'ân al-karîm* by Majma' al-Lughah al-'Arabiyyah,⁶⁶ and *mu'jam al-alfâz wa al-a'lâm al-Qur'âniyyah* by Ibrâhîm.⁶⁷ The two works are distinguished by having the lexical meaning accompanying the words. The latter recognized 'Abd al-Bâqî's weakness of reducing the names to roots, in that he provides them in the concordance without any derivation and places them in their alphabetical order in the concordance. Among the works in English, similar to 'Abd al-Bâqî, are *Miftahul Qur'an* by Kâzim,⁶⁸ and *A Concordance of the Qur'an* by Kassis⁶⁹. However, a distinctive feature of Kassis's concordance is that it consists of two parts. Part one consists of a list of brief Qur'anic citations in which the name of God occurs, arranged in transliterated Arabic alphabetic order according to the key Arabic term with which the holy name is associated. A similar list of citations covers the occurrences in the Qur'an of all other words except common words (prepositions, articles, etc.). Part two consists of an index of all the English words except common words that occur in Arberry's translation of the Qur'an, arranged as in Part one.

Other attempts, with a back index of the copy of the Qur'an, are provided by al-Himşî⁷⁰ and Muḥammad⁷¹ in the Arabic language, and by Ramyâr⁷² in the Persian-Arabic language. Less similar, yet following the same approach are *dalîl al-ḥayrân fî al-kashf 'an âyât al-Qur'ân* by Nâzim⁷³, *fath al-raḥmân li-tâlib âyât al-Qur'ân* by al-Maqdisî,⁷⁴ *al-mu'jam al-mufahras li-âyât*

⁶⁶ Majma' al-Lughah al-'Arabiyyah (1970), *mu'jam alfâz al-Qur'ân al-karîm*, Cairo. [Arabic text]

⁶⁷ Ibrâhîm, Muḥammad Ismâ'îl (1968), *mu'jam al-alfâz wa al-a'lâm al-Qur'âniyyah*, Cairo. [Arabic text]

⁶⁸ Kâzim, A. (1979), *Miftahul Qur'an: Concordance and Complete Glossary of the Holy Qur'an*, Chicago.

⁶⁹ Kassis, H. E. (1983). *A Concordance of the Qur'an*, Calif.: Berkeley.

⁷⁰ al-Himşî, Muḥammad Ḥasan (1984), *Qur'an karîm: tafsîr wa bayân ma'a fahâris kâmilah lil-mawâdî' wa al-alfâz*, Beirut. [Arabic text]

⁷¹ Muḥammad, 'Abd al-Raḥmân (n.d.), *al-muṣṣaf al-mu'alim*, Cairo. [Arabic text]

⁷² Râmyâr, Bukshûsh Maḥmûd (n.d.), *Qur'an majîd mulḥaq bihi fahris kalimât wa maṭâlib*, Tehran. [Persian-Arabic text]

⁷³ Nâzim, Şâlih (n.d.), *dalîl al-ḥayrân fî al-kashf 'an âyât al-Qur'ân*, Beirut. [Arabic text]

⁷⁴ al-Maqdisî, Zâdah Fayḍ Allah (1906), *fath al-raḥmân li-tâlib âyât al-Qur'ân*, Beirut. [Arabic text]

al-Qur'ân al-karîm by al-Dimashqî,⁷⁵ *al-murshid ilâ âyât al-Qur'ân al-karîm* by Barakât,⁷⁶ *al-dalîl al-kâmil li-âyât al-Qur'ân al-karîm* by al-Shâfi'î⁷⁷ and *mu'jam âyât al-Qur'ân* by Naṣṣâr.⁷⁸ These works attempted to list the Qur'anic verses alphabetically rather than simply compiling the words. However, the approaches are not as far removed from a word methodology as to deter one from calling them Qur'anic concordances.

Turning to the multilingual Qur'anic dictionaries, *A Dictionary and Glossary of the Koran* by Penrice,⁷⁹ and *Vocabulary of the Holy Qur'an* by al-Nadawi⁸⁰ have supplied Arabic-English Qur'anic dictionaries. Penrice's dictionary is based on Flügel concordance. Each word is placed under its verbal root; where none exists the word is alphabetically placed in its position in the dictionary. The vowel of the aorist is given where it is known. However, one major drawback in Penrice's dictionary, as identified by the author in the preface, is that he failed to notice the variant readings of disputed passages, or the numerous interpretations of the same passages which abound in the commentaries. Al-Nadawi's dictionary, though it covers this gap, is no different. The author notes in the preface the names of commentaries he used. Also his work is distinguished for its supplemented indexes for the roots of the words used. Similar works which have been undertaken in other languages are *Qur'an Ki Char Bunyadi Istelahat* by Mawdûdî⁸¹, which is a work of basic terms in Urdu rendered into Arabic, *Dictionary al-Qur'ân* by Syamsu⁸² for

⁷⁵ al-Dimashqî, Muḥammad Munîr (1984), *al-mu'jam al-mufahras li-âyât al-Qur'ân al-karîm*, Cairo. [Arabic text]

⁷⁶ Barakât, Muḥammad Fâris (1939), *al-murshid ilâ âyât al-Qur'ân al-karîm*, Damascus. [Arabic text]

⁷⁷ al-Shâfi'î, Ḥusayn Muḥammad (1972), *al-dalîl al-kâmil li-âyât al-Qur'ân al-karîm*, Cairo. [Arabic text]

⁷⁸ Naṣṣâr, Ḥusayn (1965), *mu'jam âyât al-Qur'ân*, Cairo. [Arabic text]

⁷⁹ Penrice, J. (1985), *A Dictionary and Glossary of the Koran*, London. Known in Arabic as *salk al-bayân fi manâqib al-Qur'ân*.

⁸⁰ al-Nadawi, A. A. (1983), *Vocabulary of the Holy Qur'an*, Jiddah. Known in Arabic as *qamûs alfâz al-Qur'ân al-karîm*.

⁸¹ Mawdûdî, Syed Abî al-A'lâ (1979), *Qur'an Ki Char Bunyadi Istelahat*, translated into English by Abû Asad, Lahore. [Urdu-Arabic text]

⁸² Syamsu, N. (1977), *Dictionary al-Qur'ân: Indonesian-English Denoting Books and Verses*, Djakarta. [Indonesian-English text]

Indonesian-English Qur'anic terms, and *Middle Turkic Glossaries of the Ryland's Interlinear Koran Translation* by Eckmann⁸³ with a Turkic-English-Arabic-Persian glossary.

The third era, the discipline-oriented era,⁸⁴ is characterized by the division of knowledge into more or less watertight compartments or disciplines and results in a growth in specialization and a development of disciplines in their own right. Based on this development, works on selected topics in the Qur'an have been published in the English language by Kherie's *A Key to the Holy Qur'an*,⁸⁵ Afzalur Rahman's *Qur'anic Sciences*,⁸⁶ and Sherif's *A Guide to the Qur'an*,⁸⁷. Also attempts to list relevant verses under specific headings have been undertaken in Afzalur Rahman's *Subject Index of Qur'an*⁸⁸ and Khan's *An Index to Qur'anic Teachings*.⁸⁹ However, the first comprehensive subject headings of the Qur'an was introduced by the French Orientalist La Beaume *La Koran Analyse*. This work is divided into eighteen major broad subject headings which are further subdivided into 350 items. The work was translated into Arabic by 'Abd al-Bâqî under the name *tafsîl âyât al-Qur'ân al-ḥakîm*. During the translation process, 'Abd al-Bâqî added to the work a further 100 items from Montet French translation of the Qur'an which he called *al-mustadrak*.⁹⁰ Similar works to 'Abd al-Bâqî's translation are *tabwîb âyî al-Qur'ân mina al-nâḥiyyah al-mawḍû'iyah* by Muhannâ⁹¹, *al-jâmi' li-mawâḍi' âyât al-Qur'ân al-karîm* by Barakât⁹², and *al-fahris al-mawḍû'î*

⁸³ Eckmann, J. (1976), *Middle Turkic Glossaries of the Ryland's Interlinear Koran Translation*, New York. [Turkic-English-Arabic-Persian text]

⁸⁴ Foskett, *op.cit.*

⁸⁵ Kherie, A. B. (1979), *A Key to the Holy Qur'an: Index-cum-Concordance for the Holy Qur'an*, Karachi.

⁸⁶ Afzalur Rahman (1981), *Qur'anic Sciences*, London.

⁸⁷ Sherif, F. (1985), *A Guide to the Qur'an*, London.

⁸⁸ Afzalur Rahman (1983), *Subject Index of Qur'an*, Lahore.

⁸⁹ Khan, A. (1987), *An Index to Qur'anic Teachings*, Islamabad.

⁹⁰ 'Abd al-Bâqî, Muḥammad Fû'âd (1969), *tafsîl âyât al-Qur'ân al-ḥakîm wa al-mustadrak*, Beirut. [Arabic text]

⁹¹ Muhannâ, Aḥmad Ibrâhîm (1983), *tabwîb âyî al-Qur'ân mina al-nâḥiyyah al-mawḍû'iyah*, Cairo. [Arabic text]

⁹² Barakât, Muḥammad Fâris (1985), *al-jâmi' li-mawâḍi' âyât al-Qur'ân al-karîm*, Beirut. [Arabic text]

li-âyat al-Qur'ân al-karîm by Muḥammad.⁹³ Moreover, Muḥannâ divided his work into eighty-seven subjects, Barakât divided his into twenty-four broad subject headings and Muḥammad into twenty-nine broad headings.

Other attempts, but into a back index of the copy of the Qur'an, have been undertaken by al-Ḥimṣî⁹⁴ in the Arabic language, and by Ramyâr⁹⁵ in the Persian-Arabic language. Al-Ḥimṣî divided his work into fifteen broad headings, while Ramyâr divided his into thirteen. Also, in his index, Ramyâr listed all the unknown persons mentioned in the Qur'an separately at the end of the index.

Finally, an exhaustive and comprehensive subject index is that of *al-fahris al-mawḍû'î lil-Qur'ân al-karîm* by Fânî and Khorrāmshâhî in Persian-Arabic languages.⁹⁶ This work which is based on an alphabetic arrangement of subjects is not divided into broad subjects, but rather indicates the entries directly in alphabetical order. The index includes 7000 entries, together with cross-references. Also, variant readings, occasions of revelations and different interpretations are taken into consideration in the number indicated by the authors in the preface. However, although there is no doubt that this is the most successful and advanced Qur'anic subject index, it has three main disadvantages: first, the entries are arranged alphabetically and not under broad headings. This calls for an intellectual effort from the user who has to guess the word before searching thus reducing his recall of subjects to his ability to recall particular words. Secondly, the reference to the verse and chapter numbers alone without the text of the Qur'an requires the user to refer to the copy of the Qur'an before finding his material. Though this ultimately reduces the size of the index, it creates the irritation of doubling the effort. Thirdly, the fact that

⁹³ Muḥammad, Muḥammad Muṣṭafâ (1984), *al-fahris al-mawḍû'î li-âyat al-Qur'ân al-karîm*, Baghdad. [Arabic text]

⁹⁴ al-Ḥimṣî, *op.cit.*

⁹⁵ Ramyâr, *op.cit.*

⁹⁶ Fânî, Kâmrân and Khorrāmshâhî, Bahâ' al-Dîn (1986), *al-fahris al-mawḍû'î lil-Qur'ân al-karîm*, Tehran. [Persian-Arabic text]

the two authors are from a Shi'ite background means that their Shi'ite thought is reflected on several occasions in the index, for example, referring to the claim that some verses were revealed in the cause of Fâtimah and 'Aliyy (see the index under Fâtimah and 'Aliyy).

Considerable efforts have been made to adapt contemporary technology to the Qur'an to produce a screen presentation of the Qur'anic text to facilitate easy search and retrieval. Among these works are: *Salsabeel*⁹⁷, *al-Raed 100*⁹⁸, *Qur'an Database*⁹⁹, *al-Qur'ânic Database*¹⁰⁰, and *al-Qur'ân al-karim*¹⁰¹. However, *Salsabeel* is essentially a software word index. It provides whole word matching, but does not retain the Qur'anic calligraphy nor does it display the essential diacritical marks. Similarly, *al-Raed 100* provides the text of the Qur'an in the English and Arabic languages. Like *Salsabeel*, the search strategy is by whole word matching, though it does display the essential diacritical marks. Again, *al-Qur'ânic database* presents the text of the Qur'an in the English language, and provides whole word matching, and synonym searching through Boolean logic. More advanced, *Qur'an Database* displays the Qur'anic text in Arabic, English and Thai. The software is supplied with an indexing system that provides for searching and retrieval both by words and by subjects. Finally, *al-Qur'ân al-karim* software maintains the diacritical marks and the original calligraphy of the Qur'an. The search strategy is by whole words and roots, vowelled and unvowelled. It also provides for searching through subjects, together with some other features that help the user in the field of Qur'an studies.

⁹⁷ Applied Microsystem Technology (1987), *Salsabeel: An Electronic Index of Qur'an*, London.

⁹⁸ Computer Technology Corporation (1987), *Al-Raed 100: An Electronic Index of Qur'an*, California.

⁹⁹ Siamwalla and Company (1986), *Qur'an Database: An Electronic Index of Qur'an*, Bangkok.

¹⁰⁰ Islamic Computing Center (1987), *al-Qur'ânic Database: An Electronic Concordance of the Meanings of the Qur'an*, London.

¹⁰¹ Al-'Alamiyyah, (1988) *al-Qur'ân al-Karîm: An Electronic Library of Qur'an*, Kuwait.

Despite the fact that they could be regarded as unique attempts in the area of Qur'anic word and subject retrieval, they all show (except for that of Fânî and Khorrāmshâhî) some important deficiencies. First, the division of the subjects does not reflect the actual range of the Qur'anic contents, but is rather arbitrary. This is reflected in the variety of the divisions found in these works. For instance, eighteen broad headings are used in La Beaume, fifteen in Râmyâr and twenty-nine in Muḥammad. Secondly, the selection of the broad headings does not follow any consistent criterion. This is illustrated by the appearance of some specific topics alongside their general headings. For instance, *al-akhlâq al-dhamîmah* الأخلاق الذميمة (immorality) and *al-nifâq* النفاق (hypocrisy) by Barakât. Thirdly, these indexes depend on only one popular reading in the Islamic world, that is "the reading of Ḥafs", as is clearly shown by al-Ḥimsî. This eliminates other possible interpretations of the verses that could have resulted from the different readings. Fourthly, the occasions of revelation are not taken into consideration and this can highlight some historical interpretation for the verses. Fifthly, the works do not acknowledge whether or not the placement of the verses is through the compiler's own choice or a result of consultation of specific commentaries. Sixthly, the cross-referencing is poor, and lack of control vocabulary (i.e. plural-singular, derived nouns, synonyms) is apparent in the selection of the key words.

It is evident, however, that the authors of the above mentioned works did not commit themselves to establishing an analytical subject classification; they were, instead, doing it for self-satisfaction alone. Needless to say now that there is a fourth mission-oriented era,¹⁰² in which demands for information can span a whole range of disciplines, the old barriers between disciplines have been removed, even if shadow boundaries among the specialized fields have been retained. This process (i.e. analyzing the Qur'an with a view to establishing an analytical subject classification), therefore, emphasises that the distinction

¹⁰² Foskett, *op.cit.*, p.3.

between word and subject indexing is worth defining. Specifically, in word indexing, the indexer is inextricably tied to the words in a text, regardless of their meanings: if the word appears in the text, it is selected; if it does not appear, it is not. In that sense, word indexing requires little skill in the field of indexing nor does it require subject-matter training on the part of the indexer. However, word indexing leads to the dispersal of related subjects since the meanings of the words are not taken into account, yet it is this type of indexing which is performed effectively by the computer. In contrast, in subject indexing, the indexer frequently appeals to the meanings of the words and makes a careful selection of the terminology used in the subject enquiry to avoid dispersion of related subjects under different headings. This type of indexing, therefore, requires a great deal of subject-matter training on the part of the indexer and necessitates a high skill in indexing as well. In terms of machine searching it has had little success and has a long way to go. However, in the present study the process of indexing concentrates not simply on selection of words or keywords in the text, but on the contents studied, emphasized, organized, or expanded in the text. It requires the indexer to abstract the subjects that are apparent as well as those that are hidden in the text, and to either convert the words into single-word form or combinations of words that best express the ideas. This type of index has not lent itself to machine searching, therefore, a number of researchers are now active in examining the potential of such an index. However, in the context of this study this is the form of index which will be referred to as a retrieval system.

1.4. Qur'anic Retrieval System

The Qur'anic retrieval system, as explored in this study, is a system designed to augment human knowledge and to aid human activity by storing items from Qur'anic texts that need to be processed, searched, retrieved, or disseminated to various user populations. To compile a Qur'anic retrieval system, two main factors should be considered: the abstraction of hidden allusion to the subject

from the Qur'anic texts, and the ability to identify them by words even if they are mentioned by means of different phraseology in the text. In the construction process, two complementary features are involved: the different interpretations applied to a verse or verses by different commentators, and the form and organization of the headings that are likely to describe the verses in the retrieval system. From the indexing point of view, the difference in interpretations could lead to the placing of verses under different headings. On the other hand, the efficiency of the retrieval system would be seriously affected if the compiler were not to use the headings in a strictly controlled way so as to provide the user with easy access to the system. In many cases where the criteria for placing the verses and selecting the headings are not specified in the construction of the retrieval system, the user may feel that the information he seeks is not provided, although in fact it is provided, but placed somewhere else. This is probably the most important simple aspect in subject indication. In terms of its general form (i.e. for the purpose of a library catalogue) Cutter, who followed an empirical approach to the basic problems of subject indication, provided four rules which govern the formation of classes by literary warrant which are¹⁰³: polytopical books must all be entered under a distinct subject heading¹⁰⁴; each work must be entered under its subject-heading, not under the heading of a class which includes that subject¹⁰⁵; each work must be entered under the word which best defines its subject, whether it occurs in the title or not¹⁰⁶; and the preferred heading in the case of synonyms is the one that is most familiar to the class of people who consult the library.¹⁰⁷ Cutter's attempt was more general in the *Rules for a Dictionary Catalogue* to devise a generalized set of codes for the construction of alphabetical subject headings.¹⁰⁸ These subject headings were a starting point for the pattern of

¹⁰³ Cutter, C. A. (1949), *Rules for a Dictionary Catalogue*, Washington, D.C. rep.

¹⁰⁴ *Ibid.*, p.75.

¹⁰⁵ *Ibid.*, p.66.

¹⁰⁶ *Ibid.*, p.71.

¹⁰⁷ *Ibid.*, p.70.

¹⁰⁸ Cutter, *op.cit.*

vocabulary control, i.e. a controlled list of index terms, which was dominant in subject catalogues in libraries for many years.¹⁰⁹

As the subject matter of publications tends to be complex, the vocabulary of the compound subject headings suggested for library cataloguing is not adequate for the more exhaustive technique of subject indication, that is for a "thesaurus".¹¹⁰ Originally, the term "thesaurus" has come from the Greek concept of storehouse or treasury.¹¹¹ Subsequently, the term thesaurus came to be used in connection with the construction of an English dictionary, such as *Roget's Thesaurus of English Words and Phrases*.¹¹² *Roget's Thesaurus*, which was first published in 1852, arranged the words according to the ideas expressed so as to provide the user with a number of alternative words for a similar concept that might equally appropriately express that concept. Given this function *Roget's Thesaurus* cannot be regarded as a thesaurus for information retrieval from the information scientist's point of view.¹¹³ The most distinctive function of the information retrieval thesaurus is to control synonyms, homographs, generic levels of meanings and spurious relations between terms. According to Joyce and Needham, investigators at the Cambridge Language Research Unit in England began to discuss the applicability of the thesaurus concept to information retrieval in 1956.¹¹⁴ While, according to Vickery, the first time the word thesaurus was used in connection with information retrieval was in 1957.¹¹⁵ Nowadays, the thesaurus is used more widely than the list of subject headings; it has become

¹⁰⁹ Lancaster, F. W. (1972), *Vocabulary Control for Information Retrieval*, Washington, D.C., p.15.

¹¹⁰ *Ibid.*, p.23.

¹¹¹ Vickery, B. C. (1960), *Thesaurus - A New Word in Documentation*, *Journal of Documentation*, 16, 4, p.181.

¹¹² Roget, P. M. (1986), *Roget's Thesaurus of English Words and Phrases*, London.

¹¹³ Lancaster, *op.cit.*, p.25.

¹¹⁴ Joyce, T. and Needham, R. M. (1958), *The Thesaurus Approach to Information Retrieval*, *American Documentation*, 9(3), p.194.

¹¹⁵ Vickery, *op.cit.*, p.181.

popular to such an extent that Schreider defines information as "the degree of change of the thesaurus".¹¹⁶

In principle, subject heading lists and thesauri are similar in that both consist of alphabetically arranged terms, with cross-references. Also, some specialists use the terms subject headings list and thesaurus interchangeably because of their evident similarity of design. Foskett expresses this similarity thus:

"The only difference between a thesaurus and a list of subject headings is that the former normally excludes headings for composite subjects; with some examples, even this is not true, and one is forced to the conclusion that the name is intended to signify a distinction which does not exist. Many lists of subject headings have left much to be desired, and thesaurus constructors have perhaps endeavoured to persuade us (and themselves) that their lists were free from fault."¹¹⁷

Yet this distinction remains that traditional lists of subject headings, such as the Library of Congress subject headings list, are meant to deal with all of human knowledge, while most, if not all, modern thesauri treat only a subset of this knowledge, namely a particular discipline or field of study. In the context of this study, both the lists of subject headings and thesauri will be considered as equal in terms of their similarity in design for the purpose of analyzing their weaknesses and strengths in relation to Qur'anic vocabularies.

The foregoing considerations make it plain that much can, in principle, be gained from using vocabulary control devices. In practice it may emerge that accuracy and consistency are difficult to maintain. Not only must indexers be intimately aware of the available indexing vocabularies and practices, but they should also have knowledge of collection characteristics and a high degree of sophisticated training and experience. More often than not, however, the resulting index entries are incomplete or lack specificity. They are also time-consuming and expensive. By far the most common alternative technique is to

¹¹⁶ Schreider, Yu. A. (1965), *On the Semantic Characteristics of Information, Information Storage and Retrieval*, 2, p.222.

¹¹⁷ Foskett, *op.cit.*, pp.440-441.

use little or no vocabulary control; i.e. to use an automatic natural language database.

In an automatic natural language database, the entire text of the document collection has to be fed into a machine-readable form (punched cards, disks, etc.). This will be normally kept in a special storage memory under code numbers. A special program is then prepared to locate the items of information on request by means of a program searching strategy. An automatic natural language database is a successful replacement to a manual system due to the potential advantages of using the language of discourse. Also it provides just the right kind of expression to denote each particular concept. Furthermore, it may be carried out more rapidly, and more cheaply than indexing based on controlled vocabulary. However, a critical problem in constructing an automatic natural language database is textual accuracy. This essentially has led investigators in computational linguistics to impose various rigorous linguistic controls on natural language systems. In dealing with various linguistic levels, one must consider the morphological level at which individual words can be recognized and formed, and the syntactic and semantic levels in which the grammatical structure of the sentence can be identified and interpreted. It is important, therefore, to be aware of the automatic methods currently used to process natural language texts, though the full scope of language understanding may not be needed in information retrieval. In the context of this study, the various levels of linguistic methods as well as the commonly used grammatical theories will be tested in relation to the Qur'anic text. Also the main feature of the Arabic language will be analyzed in relation to current software programs.

1.5. Methodological Approach

The present study attempts to relate the ideological value content presented in Qur'anic texts to the empirical facts established in the mission-oriented era. The study is neither philosophical nor empirical, but fundamentally analysis-based, i.e. it is based on the analysis of, and suggested solutions to, the problems that are likely to face the compiler in analyzing the issues that confront scholars in seeking access to the scriptures and the problems, that are likely to face compilers in the process of constructing the retrieval system in relation to the Arabic language, both in terms of a manual and of an automatic systems (Figure 1-2). Also, there is an attempt to draw up guidelines for compilers on the basis of recommendations and principles based on discussion and analysis of the problems presented. However, as the fruits of this work are intended to be taken as the initiation of an analytical subject indication of the Qur'anic texts, examples are provided on the basis of the disciplines of the natural sciences and social sciences.

Since, in the existing study it is not practical to conduct experimental work on all aspects, the choice has been narrowed down by accepting appropriate pre-recommendations, such as principles of interpretations, norms of the Arabic language, suggestions of information retrieval specialists, and pre-established design rules of computer specialists. In practice, of course, many design decisions will be taken in line with these recommendations. Preliminary decisions about system requirements and constraints will colour the whole development process, and may, therefore, strongly influence the design of the retrieval system under construction. Simply knowing in formal terms what the system will look like is not enough; the design guidelines will also determine the type of people needed for the work and the way they will perform it. Finally, examples are proposed as a useful intellectual exercise to encourage compilers to check that all significant points have been taken into consideration in the analysis.

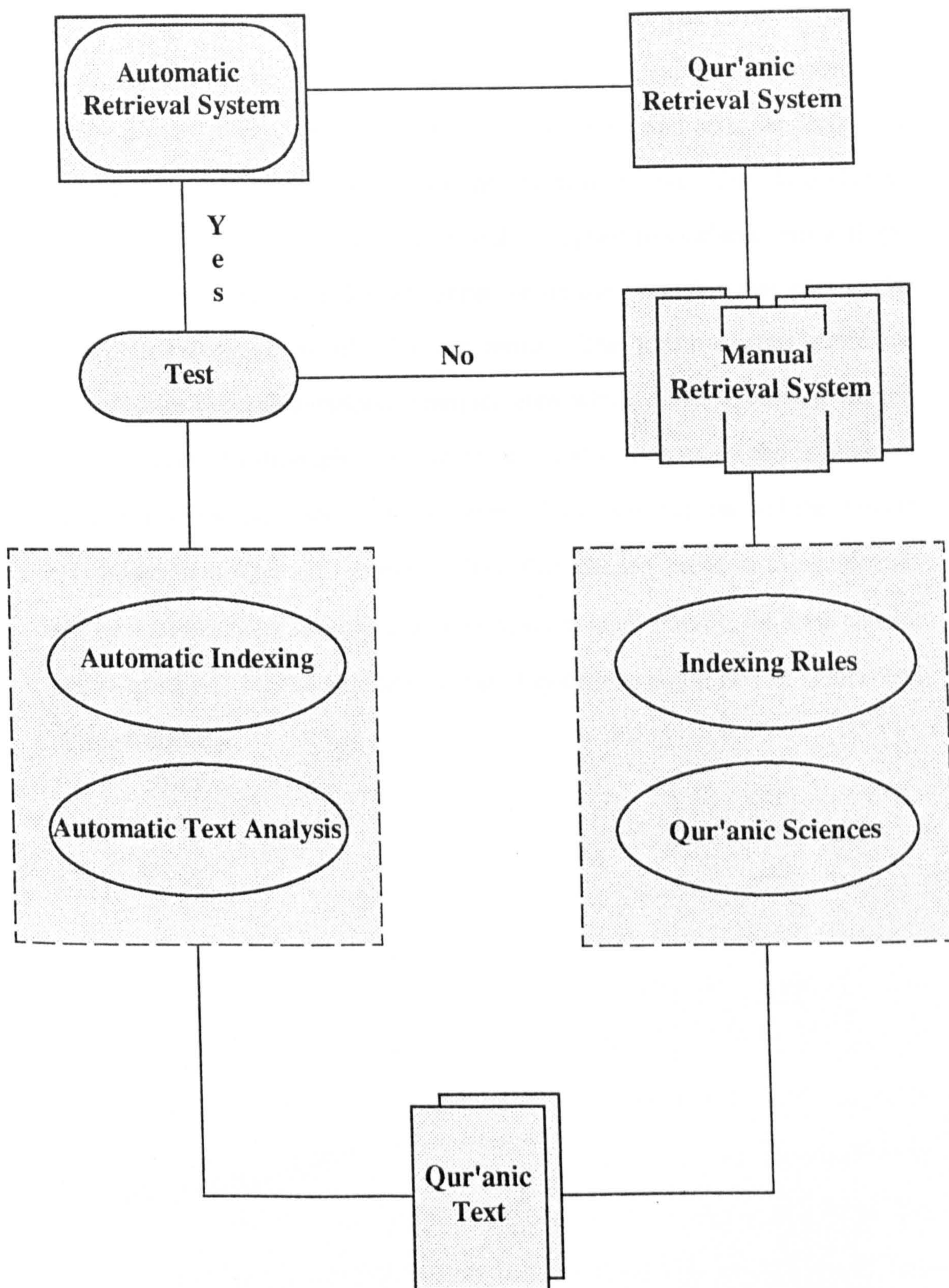


Figure 1-2: the chart represents the steps that have been taken through this study to initiate a Qur'anic retrieval system.

The following chapters are therefore so organized as to confront the problems and the solutions encountered in attempts to design a Qur'anic retrieval system. The second chapter highlights the major philological, historical and theological considerations as indicated by various interpretations and tests the impact of these opinions on the performance of the retrieval system. The third chapter analyzes the function of vocabulary control as applied to Qur'anic terminology. It also measures by using known experiments the variables that control the compiler's judgement in selecting the terms. The fourth chapter examines treatments in the computational analysis area which have a bearing on the Qur'anic style of calligraphy and structure. It also focuses on the function of the man-machine interface in the interests of user satisfaction and the content representation of Qur'anic software. The fifth chapter presents the guidelines and recommendations of the Qur'anic retrieval system. Finally, the sixth chapter applies examples for the Qur'anic retrieval system as suggested in natural and social sciences.

CHAPTER TWO

THE NATURAL LANGUAGE PROBLEMS IN QUR'ANIC STATEMENTS

2.1. Overview

In any attempt to construct a retrieval system of the Qur'an, the compiler will be faced with a number of different interpretations as to the understanding of a single word, verse or passage. From the compiler's point of view, as far as indexing is concerned, all these differences go under one category: which opinion to adopt. Ignoring such differences in the Qur'anic retrieval system could result in failure in the system; it may happen that the user is searching within the framework of a certain idea, which the compiler has presented through another. To overcome this obstacle, the compiler needs an operational criterion to judge in relation to different interpretations. Whatever path the compiler follows, acknowledgement of his view should accompany the citation of the verses, but most important is the qualification that should be provided about the interpreters whose commentaries have to be followed.

Three perspectives are used to prescribe the problems in this chapter. The first deals with philological aspects of a verse or passage in order to elucidate its literal meaning and/or practical application. The second presents the historical context of a verse or statement that helps us to understand the implication, explanation or application of the verse in question for a certain situation. The third is to highlight the theological views or controversies which a word, verse or passage has raised among commentators. The complementary nature of these three perspectives provides an integrated approach to exegetical analysis which forms the basic source for the compiler in constructing a Qur'anic retrieval system.

2.2. Philological Aspects

All Qur'anic statements are by definition divine revelations. Therefore, it is not surprising that a great deal of difficulty has been experienced by the early scholars in framing rules to explain the problems of language that have crept in. Their studies in terms of lexical and grammatical structure have led to a number of different opinions. These opinions will affect the performance of the retrieval system as applied within its relation to the user need and the compiler provision. The following are some examples of the opinions concerned which highlight the problems that are likely to face the compilers of the Qur'anic retrieval system.

2.2.1. Ambiguous expressions

Ambiguity means that a word or sentence may have more than one meaning. There are a number of cases in the Qur'an where verses have no universally agreed interpretation. For example:

"O Prophet, when believing women come to you, swearing allegiance that they will not ascribe anything to God; neither will they steal, nor commit whoredom, nor slay their children, nor bring any calumny that they forge between their hands and their legs, nor disobey you in a good turn; then seal a pledge with them, and ask God's forgiveness for them, for God is Forgiving, Merciful." (60:12)

«يَأْتِيهَا النَّبِيُّ إِنْ جَاءَكَ الْمُؤْمِنَاتُ يَبَايِعَنَّكَ
عَلَى أَنْ لَا يُشْرِكْنَ بِاللَّهِ شَيْئًا وَلَا يَسْرِقْنَ وَلَا
يَزْنِينَ وَلَا يَقْتُلْنَ أَوْلَادَهُنَّ وَلَا يَأْتِينَ بِبُهْتَانٍ
يَفْتَرِيْنَهُ بَيْنَ أَيْدِيْهِنَّ وَأَرْجُلِهِنَّ وَلَا يَعْصِيْنَكَ فِي
مَعْرُوفٍ قَبَايِعُهُنَّ وَأَسْتَغْفِرْ لَهُنَّ اللَّهُ إِنَّ اللَّهَ
غَفُورٌ رَحِيمٌ» (١٢:٦٠)

The phrase *wa lâ ya' tîna bi-buhtânin yaftarînahu bayna aydîhinna wa arjulihin* (nor bring any calumny that they forge between their hands and their legs) is ambiguous and open to two different interpretations: As al-Qurṭubî (died 971 A.H./1563 A.D.)¹ has pointed out, according to one view the phrase generally refers to adultery or those [women]

¹ al-Qurṭubî, Abû 'Abd Allah Muḥammad (1954), *al-jâmi' li-aḥkâm al-Qur'ân*, Cairo, vol.XVII, p.72. [Arabic text, reproduced]

who beget illegitimate children (by deceiving their husbands).² While according to the other view, it refers to bewitching and bewitching –related acts.³

If the compiler adopts al-Qurṭubî's first view, the underlined phrase would be placed under the heading *al-zinâ* الزنا (adultery). While if the compiler refers to al-Qurṭubî's second view, the phrase would be placed under the heading *al-sihr* السحر (bewitching). The placement of the phrase under both headings, taking the two meanings as valid, is also a possible solution, though it has to be determined by the compiler's policy of structuring the retrieval system; the compiler should provide the user with information about the criteria followed in selecting the exegesis, and the criteria used to adopt specific opinions.

Another problem related to the expressions in the Qur'an is the existence of Arabic dialects. Qur'anic scholars believe that in its linguistic style the Qur'an as a miracle involved more than forty dialects of Arab tribes with their vocabularies.⁴ The existence of these vocabularies in the commentaries reflects different shades of meaning given to a single word or verse and could affect the recalling performance of the system if the compiler has taken account of one meaning rather than another. For example:

"Man is indeed to his Lord *kanûd*.
And surely he is a witness to that.
And truly for the love of good
things he is emphatic" (100:6-8)

«إِنَّ الْإِنْسَانَ لِرَبِّهِ لَكَنُودٌ، وَإِنَّهُ عَلَىٰ ذَلِكَ
لَشَهِيدٌ، وَإِنَّهُ لِحُبِّ الْخَيْرِ لَشَدِيدٌ» (١٠٠:٦-٨)

The word *kanûd* كنود , according to al-Zamakhsharî (died 538 A.H./1143 A.D.)⁵, has three shades of meanings as known to three Arab tribes; the meaning *al-kufr bil-ni'mah* الكفر بالنعمة (to be ungrateful) in the dialect of

² *Ibid.*

³ *Ibid.*, p.74.

⁴ al-Suyûtî, Jalâl al-Dîn 'Abd al-Rahmân (1987), *al-itqân fî 'ulûm al-Qur'ân*, Beirut, vol.I, p.287. [Arabic text, reproduced].

⁵ al-Zamakhsharî, Abû al-Qâsim Maḥmûd ibn 'Umar, (1972), *al-kashshâf 'an ḥaqâq al-tanzîl*, Cairo, vol.III, p.278. [Arabic text, reproduced]

Muḍar and Rabî'ah, the meaning *al-‘âsî العاصي* (disobedient) in the dialect of Kindah, and the meaning *bakhîl بخيل* (avaricious) in the dialect of banî Mâlik. Al-Qurtubî asserts that the tribe of Ḥadramawt used also to refer to the word *kanûd كنود* as *al-‘âsî العاصي* 6, while al-Suyûṭî confirms that the tribe of Kinanah refers to the word *kanûd كنود* as *kufr كفر* 7.

Whatever tribal dialect it is, the commentators offer the compiler three different headings under which the verse could be placed viz, *kufr al-insân bil-ni‘mah* كفر الإنسان بالنعمة (man is ungrateful), *‘iṣyân al-insân عصيان الإنسان* (man is disobedient), and *bukhl al-insân بخل الإنسان* (man is avaricious). The choice between these meanings made by the compiler should follow a particular procedure which should be acknowledged in the retrieval system, or if he decides to choose one he should justify the reason. For instance, he might adopt the Quraysh dialect, as it is the official language of the Qur'an (i.e. by referring to the word *kanûd كنود* itself and not to any of its meanings). In this case the verse will be placed under the heading *kunûd al-insân كُنُود الإنسان* (man is ungrateful). If the compiler wants to include the other meanings in the system the heading must be supported by a footnote to provide the user with information of other possible meanings.

Another important problem that faces the compiler of a retrieval system is that a great many of the Qur'anic statements make use of pronouns as linkage to nouns or names preceding or previously mentioned, included or omitted from the same verse or other verses in the same chapter.⁸ Difference in interpretation, however, does occur due to pronominal co-referential, known as *marja' al-ḍamîr مرجع الضمير*,⁹ when one or many pronoun(s) make(s) reference to two or three nouns in the text and gives a completely different

6 al-Qurtubî, *op.cit.*, vol.XX, pp.160-162.

7 al-Suyûṭî, *op.cit.*, vol.I, p.284.

8 *Ibid.*, pp.397-398.

9 *Ibid.*

meaning depending on which noun it is referring to. Take, for example, the verse cited above:

"Man is indeed to his Lord ingrate. And surely *hu* is a witness to that. And truly for the love of good things *hu* is emphatic" (100:6-8)

«إِنَّ الْإِنْسَانَ لِرَبِّهِ لَكَنُودٌ، وَإِنَّهُ عَلَىٰ ذَلِكَ
لَشَهِيدٌ، وَإِنَّا لَحُبُّ الْخَيْرِ لَشَدِيدٌ» (١٠٠:٦-٨)

The connecting pronoun *hu* هـ in the above verse which in Arabic refers to a masculine pronoun could be interpreted in this verse in two different ways: either it refers back to Man or it can refer back to Lord. According to al-Zamakhsharî, the pronoun here refers to Man, which means that "man is witness on himself"¹⁰. However, he also states that in general, all the pronouns should refer back to the first noun (that is *al-insân* الإنسان Man).¹¹ As al-Zamakhsharî states, referring one pronoun to the first noun and one to the second noun is contrary to the norm and is not consistent with the eloquence of the Qur'an.¹² This accordingly will change the verse to be read as "Man is indeed to his Lord ingrate. And surely he is a witness to that". On the other hand, in his *itqân*, al-Suyûtî preserves al-Zamakhsharî's rule in referring all the pronouns to one noun, though he rejects the idea that all pronouns should refer to the first noun.¹³ Instead he refers all the pronouns to the nearest noun (that is, *rabb* رب Lord).¹⁴ Thus the verse is read "Man is indeed to his Lord ingrate. And surely He is a witness to that". However, al-Suyûtî ignores this rule in some cases, which he regards as exceptions. For instance, "Hence, do not dispute concerning them except from outward disputation, nor seek opinion of them from any one of them"¹⁵ .

¹⁰ al-Zamakhsharî, *op.cit.*, vol.IV, p.277.

¹¹ cf. al-Zamakhsharî, *op.cit.*, vol.II, p.536.

¹² *Ibid.*

¹³ al-Suyûtî, *op.cit.*, vol.I, p.399.

¹⁴ *Ibid.*

¹⁵ See verse (18:22)

He states that the first and the second pronouns *hum* هم (them) refer to the companions of the Cave, while the third pronoun *hum* هم (them) refers to the Jews.¹⁶ On the other hand, al-Qurtubî, who pointed out regarding verse (100:6-8) that there are two different interpretations for the first pronoun, replies that there is no disagreement among the commentators on the second pronoun *hu* هـ , which he states, all commentators believe, refers to Man¹⁷.

If the compiler deals with pronouns of the type underlined in the above verse, the phrase will be interpreted according to the noun that the pronoun refers to, i.e. whether to *al-insân* الإنسان or to *rabb* رب . If the compiler follows al-Zamakhsharî's rule, i.e. chooses the pronoun with reference to *al-insân* الإنسان , then the compiler should place the verse under the heading *shahâdat al-insân 'alâ nafsih* شهادة الإنسان على نفسه (Man's witness on himself); he may also follow this rule in all his treatment of the Qur'anic verses, and state this policy in the retrieval system. Whereas if the compiler prefers to use al-Suyûtî's rule, i.e. chooses the pronoun with reference to *rabb* رب , then he should place the verse under *shahâdat Allah 'alâ al-insân* شهادة الله على الإنسان (Lord's witness on Man); he may also follow and state this policy throughout the compilation as well, and draw full attention to include the exceptions which are found. However, if the compiler prefers to have a free hand and follow al-Qurtubî's views by choosing the pronoun that best expresses the meaning of the verse in its context, then the compiler has to be knowledgeable in Arabic and fully aware of the norms of the language; he should, furthermore, justify his choice, or include the other possible interpretations in a footnote. Otherwise, the two views should be taken into consideration and placed under the two headings: *shahâdat al-insân 'alâ nafsih* شهادة الإنسان على نفسه and *shahâdat Allah 'alâ al-insân* شهادة الله على الإنسان .

¹⁶ *Ibid.*

¹⁷ al-Qurtubî, *op.cit.*, vol.XX, p.160.

Another similar difference of opinion among commentators is based in the fact that in the Qur'an there are many stories (*qasas* قصص) given as illustrated reminders of the earlier prophets and their struggle. In quite a number of these *qasas* قصص, where a conversation has taken place between two or three persons, the person addressed to cannot be identified. This situation is known among Qur'anic scholars as "*al-mawṣûl lafẓan al-mafṣûl ma'nān*"¹⁸. However, from the compiler's point of view this situation which results in different interpretations could lead to placing a statement under different headings. For example:

"And the King said, 'Bring him to me.' And when the envoy came to him, he said, 'Return to your Lord and ask of him, "What of the women who cut their hands?" Surely my Lord is Cognizant of their artifice. He said, 'What was your business when you solicited Joseph [Yûsuf] against his will?' They said, 'God forbid! We know no evil of him'. The wife of al-'Azîz said, 'Now the truth has transpired. I solicited him against his will; truly he is one of the veracious! So that he may know that I did not betray him in secret; truly God guides not the contrivance of the betrayers." (12:50-52)

«وَقَالَ الْمَلِكُ أَتُتُونِي بِهِ فَلَمَّا جَاءَهُ الرَّسُولُ قَالَ
أَرْجِعْ إِلَيَّ رَبِّكَ فَسَأَلَهُ مَا بَالُ النِّسْوَةِ الَّتِي
قَطَعْنَ أَيْدِيَهُنَّ إِنَّ رَبِّي بِكَيْدِهِنَّ عَلِيمٌ قَالَ مَا
خَطْبُكُنَّ إِذْ رُودْتُنَّ يُوسُفَ عَنِ نَفْسِهِ قُلْنَ حَاشَ
لِلَّهِ مَا عَلِمْنَا عَلَيْهِ مِنْ سُوءٍ قَالَتِ امْرَأَتُ الْعَزِيزِ
الَّتِي حَصْحَصَ الْحَقُّ أَنَا رُودْتُهُ عَنْ نَفْسِهِ وَإِنَّهُ
لَمِنَ الصَّادِقِينَ فَلِكَ لِيَعْلَمَ أَنِّي لَمْ أَخْنَهُ بِالْغَيْبِ
وَأَنَّ اللَّهَ لَا يَهْدِي كَيْدَ الْخَائِنِينَ» (٥٢-٥٠:١٢)

The phrase *dhâlika li-ya'lama annî lam akhunhu bil-ghaybi wa anna Allah lâ yahdî kayda al-khâ'inîn* : *فَلِكَ لِيَعْلَمَ أَنِّي لَمْ أَخْنَهُ بِالْغَيْبِ وَأَنَّ اللَّهَ لَا يَهْدِي كَيْدَ الْخَائِنِينَ* (So that he may know that I did not betray him in secret; truly God guides not the contrivance of the betrayers) has given rise to three different interpretations. According to Ibn Kathîr, it is a continuation of the speech of al-'Azîz's wife in conformity with her speech *al-âna ḥaṣḥaṣa al-ḥaqq* (Now the truth has transpired)¹⁹. Al-Zamakhsharî maintains that it is Yûsuf who is

¹⁸ *Ibid.*, p.195.

¹⁹ Ibn Kathîr, al-Hâfiz Abû al-Fidâ' (1981), *tafsîr al-Qur'ân al-'Azîm*, Beirut, vol.II, p.449. [Arabic text]

speaking defending his fidelity to al-'Azîz.²⁰ While al-Qurṭubî who reviewed the two views represents a third, which attributes it to al-'Azîz himself, who is maintaining that he has not been false to Yûsuf nor declined to reward him for his truthfulness.²¹

On the basis of these views, the compiler faces three interpretations. Accordingly it is possible to place the phrase under three different headings, viz, *amânat al-'Azîz* أمانة العزيز (al-'Aziz's truthfulness), *amânat imra'at al-'Azîz* أمانة امرأة العزيز (truthfulness of al-'Aziz's wife), and *amânat Yûsuf* أمانة يوسف (Yûsuf's truthfulness). In choosing between these three views, the compiler has to make his decision as to the person addressed in this statement. The criterion for adoption of any of these views should be justified, clarified and acknowledged in the retrieval system. Otherwise the three interpretations should be taken into consideration. Each interpretation should present the verse under its related headings with a reference to the other two headings in a footnote.

2.2.2. Dis/continuous statements

In constructing the Qur'anic retrieval system, the compiler's main concern is to place the relevant information under the proper heading. As far as the Qur'anic verses are concerned, the relevant information is not limited to one verse; it could be part of a single verse or extended to many verses as indicated by the lexical meaning or by the syntax of the statement. However, abstracting the relevant information from the text could lead to complete distortion of the Qur'anic statement if the norm of readings is not followed. One common situation is continuous/discontinuous statement, which is fully related to the norms of reading rather than to the differences in interpretation and is known to Qur'anic scholars as "*al-waqf wa al-ibtidâ'*" الوقف والابتداء.²² This is

²⁰ al-Zamakhsharî, *op.cit.*, vol.II, p.327.

²¹ al-Qurṭubî, *op.cit.*, vol.IX, p.209.

²² al-Suyûṭî, *op.cit.*, vol.I, p.180.

essentially linked to the norm of *tilâwah* تلاوة (recitations), which determine where to start and where to end the Qur'anic statement. It is not necessarily determined by the end of the verses, since it is inseparable from the marks of *tilâwah* تلاوة . Ignoring these marks results in a serious misinterpretation of the Qur'anic statement and may lead to complete failure of representation in the retrieval system. For example:

"Hence, woe betide those who pray;
who are inadvertent of their
prayers" (107:4-5).

«فَوَيْلٌ لِلْمُصَلِّينَ» الَّذِينَ هُمْ عَنْ صَلَاتِهِمْ
سَاهُونَ» (١٠٧:٤-٥)

In the above two verses, the semi-colon represents the end of verse number 4, but according to the rule of *tilâwah* تلاوة , and for the sake of completing the meaning of the Qur'anic statements in these two verses, the two should be read as one statement. Separating the two verses in recitation produces a statement meaning that "God is warning those who perform the praying", which is a false statement. On the other hand, if the compiler intends to place such a verse under the heading *al-ṣalâh* الصلاة (praying), which is more likely in terms of the context of the above verse, incorrect and irrelevant information will be produced by the system.

Knowledge of *al-waqf wa al-ibtidâ'* الوقف والابتداء is, therefore, extremely important for the compiler as the success of the retrieval system must be based on correct information. The compiler who intends to establish a Qur'anic retrieval system should take special notice of the marks of the recitations and show complete familiarity with the Qur'anic method of structuring the statements.

2.2.3. Variant readings

Variant reading, known among Muslim scholars as "*al-qirâ'ât* القراءات", is a term referring to the acceptable ways of oral recitation of the Qur'an as well as the punctuation of its written text.²³ These readings are of special interest to philologists and grammarians because of their interest in lexical richness and dialectical phenomena.²⁴ As far as interpretation is concerned, different readings could lead to different explanations of a single word or phrase that has a specific meaning or juridical application. If the criterion for selecting the reading is not provided in the retrieval system, this could result in the placing of the verses under different headings depending on the mode of recitation followed. For example:

"O you who believe, approach not the prayer when you are drunken, till you know what you are saying; nor when you are defiled, unless you are traversing a way, until you have washed yourselves. And if you are sick or on a journey, or if any one of you comes from the privy, or you have *lâmastum* /*lamastum* women, and you can find no water, then have recourse to clean dust and wipe your faces and your hands with it. Surely God is Clement, Forgiving." (4:43)

«يَا أَيُّهَا الَّذِينَ ءَامَنُوا لَا تَقْرَبُوا الصَّلَاةَ وَأَنتُمْ سُكَرَىٰ حَتَّىٰ تَعْلَمُوا مَا تَقُولُونَ وَلَا جُنُبًا إِلَّا عَابِرِي سَبِيلٍ حَتَّىٰ تَغْتَسِلُوا وَإِن كُنْتُمْ مَّرْضَىٰ أَوْ عَلَىٰ سَفَرٍ أَوْ جَاءَ أَحَدٌ مِّنْكُمْ مِنَ الْغَائِطِ أَوْ لَمَسْتُمُ النِّسَاءَ فَلَمْ تَجِدُوا مَاءً فَتَيَمَّمُوا صَعِيدًا طَيِّبًا فَامْسَحُوا بِوُجُوهِكُمْ وَأَيْدِيكُمْ إِنَّ اللَّهَ كَانَ عَفُورًا غَفُورًا» (٤:٤٣)

In the above verse, while *lâmastum* لامستم denotes intercourse, *lamastum* لمستم means skin touching.²⁵ In view of the above, the compiler is faced with two possible headings; *al-mulâmasah* العلامسة (intercourse) and *al-lams* اللمس (touching), the lexical meaning of the expression. This means that the above verse could be placed under either of these headings depending on the type of reading adopted.

²³ al-Zurqânî, Muḥammad 'Abd al-'Azîm (1943), *manâhil al-'irfân fî 'ulûm al-Qur'ân*, Cairo, vol.I, p.405. [Arabic text]

²⁴ 'Umar, Aḥmad Mukhtâr and Makram, 'Abd al-'Al Sâlim (1982-1985), *mu'jam al-qirâ'ât al-Qur'âniyyah*, vol.I., p.za. [Arabic text]

²⁵ al-Qurṭubî, *op.cit.*, vol.V, pp.223-228.

Muslim scholars have selected seven of the prevailing modes of recitations received from reliable sources²⁶ as the best transmitted and most approved readings.²⁷ Three complementary, but less considered, readings are also approved.²⁸ The compiler must specify clearly his criterion for selecting a reading. Otherwise, all possible interpretations should be taken into consideration and the corresponding modes of recitations be indicated in the footnote.

The view that is being advanced here is that the agency that establishes the project has to choose one of the authorized readings that is widespread in the Muslim world. The sound foundation for the selection of these readings should be correctness according to the norm of language and grammar, consistence with the literal message of the Qur'an, agreement with the written text of 'Uthmân, reliability in being traced back to the Prophet (pbuh) and right historical events, and support of the majority of Muslim scholars. The readings that are maintained and approved by Muslim scholars are:

One: The reading transmitted by 'Uthmân ibn Sa'îd (197 A.H./812 A.D.) known as Warsh which is widespread in north of Sudan, Algeria, Morocco, Mauritania, Eritrea, and West Africa.

Two: The reading transmitted by 'Isâ ibn Mînâ (205 A.H./821 A.D.) known as Qâlûn which is widespread in Tunisia, and Libya.

Three: The reading transmitted by Ḥafs ibn 'Umar (246 A.H./860 A.D.) which is widespread in most of the Sudan.

Four: The reading transmitted by Ḥafs ibn Sulaymân (180 A.H./796 A.D.) which is widespread in almost all other parts of the Muslim world.

²⁶ These are the readings of Nâfi' ibn 'Abd al-Raḥmân (died 169 A.H./785 A.D.); Ibn Kathîr, 'Abd Allah (died 120 A.H./737 A.D.); Ibn 'Amir Abû 'Umrân 'Abd Allah (died 118 A.H./736 A.D.); 'Aşim ibn Abî al-Najjûd (died 127 A.H./744 A.D.); Ḥamzah, Abû 'Imârah (died 156 A.H./772 A.D.); and al-Kasâ'î, Abû 'Abd al-Ḥasan (died 189 A.H./804 A.D.); see 'Umar and Makram, *op.cit.*, vol.I, pp.79-81.

²⁷ These are the readings that show correctness according to Arabic grammar, agreement with the written text of 'Uthmân, and can be traced back to the prophet Muḥammad (pbuh); see al-Zurqânî, *op.cit.*, vol.I, p.417.

²⁸ These are the readings of Abû Ja'far ibn al-Qa'qâ' (died 130 A.H./748 A.D.); Ya'qûb, Abû Muḥammad (died 205 A.H./820 A.D.); and Khalaf, Abû Muḥammad (died 229 A.H./844 A.D.); see 'Umar and Makram, *op.cit.*, vol.I, pp.91-93.

Adopting one of the above readings, however, will limit the problem to one of difference in pronunciation rather than interpretation, since the differences in these readings are only in pronunciation. The compiler has to accept all the differences in these readings and present each verse under its heading with a footnote reference to the other readings indicating that the verse includes different opinions depending on the recitation of a word/words.

2.3. Historical Aspects

Historical information from the Prophetic traditions and biblical stories shed light on occasions of revelation and related information that could act as a constraint in applying the understanding of certain verses in the Qur'an. Contradictory reports could, however, create a problem to the compiler who has to adopt a single view to make his decision. The following are examples of the problems that could face the compiler in dealing with historical contexts.

2.3.1. Occasions of revelation

Various verses of the Qur'an were revealed in relation to particular events and circumstances. Such events and circumstances are known among Qur'anic scholars as *asbâb al-nuzûl* أسباب النزول (occasions of revelation).²⁹ Knowledge about events and the circumstances of specific verses enables one to shed light on their implications and immediate meanings.³⁰ For instance, consider the following example:

"Unto God belong the east and the west. Thereafter, whichever direction you turn, there is the face of God, for He is All-Embracing, All-Knowing." (2:115)

«وَلِلَّهِ الْمَشْرِقُ وَالْمَغْرِبُ فَأَيْنَمَا تُوَلُّوا فَثَمَّ وَجْهُ
اللَّهِ إِنَّ اللَّهَ وَاسِعٌ عَلِيمٌ» (١١٥:٢)

If the compiler here refers only to the semantic content of the verse, he may conclude that this verse instructs Muslims to face any direction when performing their prayers. However, it is known that Muslims have to face the

²⁹ *Ibid.*

³⁰ al-Wâhidî, *op.cit.*, p.4.

direction of the Ka'bah in every prayer for it to be valid. This conclusion may, therefore, in the absence of reference to the occurrence of revelation, result in the placement of the verse under the heading *ittijâh al-ṣalâh* **إتجاه الصلاة** (direction of praying), which is a false recall, implying irrelevant information. But after reference to the occasion of revelation, the verse is seen to have been revealed in relation to a group of Muslims who were travelling on a gloomy dark night and who failed to identify the direction to the Ka'bah, facing towards which they must pray.³¹

However, there are different occasions of revelation that respond to particular situations; these were either revealed as different verses in response to one particular incident or as different views on a single verse. Such incidents and views sometimes give rise to a difference of opinion among commentators. For the compiler it is again a matter of placing the verse under the proper heading.

For example:

"The only reward of those who fight God and His messenger, and roam in the land corrupting shall be to be slain, or crucified, or to have their hands and feet alternately cut off, or to be banished from the land. That for them will be an ignominy in this world, and in the hereafter they shall have a great torment, save those who are contrite before you overpower them. Hence, know you that God is Forgiving, Merciful." (5:33-34)

«إِنَّمَا جَزَاءُ الَّذِينَ يُحَارِبُونَ اللَّهَ وَرَسُولَهُ وَيَسْعَوْنَ فِي الْأَرْضِ فَسَادًا أَنْ يُقَتَّلُوا أَوْ يُصَلَّبُوا أَوْ تُقَطَّعَ أَيْدِيهِمْ وَأَرْجُلُهُمْ مِنْ خَلْفٍ أَوْ يُنْفَوْا مِنَ الْأَرْضِ ذَلِكَ لَهُمْ خِزْيٌ فِي الدُّنْيَا وَلَهُمْ فِي الْآخِرَةِ عَذَابٌ عَظِيمٌ، إِلَّا الَّذِينَ تَابُوا مِنْ قَبْلِ أَنْ تَقْدِرُوا عَلَيْهِمْ فَاعْلَمُوا أَنَّ اللَّهَ غَفُورٌ رَحِيمٌ»
(٢٤-٢٣:٥)

In relation to the above verses, al-Qurtubî provided three Hadiths, which represent *three* occasions to which the verse applied and one view narrated by the jurists. The *three* views which relate to the occasions of revelation, are *al-mushrikîn* **المشركين** (polytheists), *al-murtaddin* **المرتدين** (apostates) such as the clan of 'Urayna, and the *ahl al-kitâb* **أهل الكتاب** (people of the Book).³²

³¹ *Ibid.*, p.20.

³² al-Qurtubî, *op.cit.*, vol.VI, pp.148-150.

On the other hand, al-Qurṭubî, with reference to the jurists, asserts that this verse is a reference to God's law to all Muslim transgressors and that this is tantamount to violation of a treaty.

Considering al-Qurṭubî's views about the occasions of revelation, the compiler is provided with three headings under which the verse can be placed: *al-mushrikîn* المشركين, *al-murtadîn* المرتدين, and *ahl al-kitâb* أهل الكتاب. If the compiler has to adopt al-Qurṭubî's opinion that the verse refers to all Muslim transgressors, then the compiler has to place the verse under the heading *al-ifsâd fî al-ard* الإفساد فى الأرض (land corruption). If the compiler adopted the occasion of revelation, the choice between the first three headings (i.e. the three different reports) should be on the basis of authentication. Al-Zurqânî provides criteria for evaluating the reports concerning the occasion of revelation in stating that:³³

One: authenticate the correct statement where there are two contradictory narrations.

Two: validate the more likely statement where both have equal claims to truth.

Three: accept the two since both are equally valid.

Four: interpret the two as identical since they repeat the same statement.

On the other hand, if the compiler wishes to choose between the occasion of revelation and the jurists' opinions, then he has to provide the other interpretation in the footnote, to refer the user to the other views.

2.3.2. General and specific statements

The Qur'an includes many verses in the form of general statements of a very wide range of application. These verses refer to all human beings or to Muslims in every time and place. However, there are also certain verses which are restricted in addressing a certain class of people or intended for specific circumstances. Qur'anic scholars used to refer to these general and specific

³³ al-Zurqânî, *op.cit.*, vol.I, pp.109-113.

statements as "*al-‘amm wa al-khâṣṣ* العام والخاص" ³⁴ As the purpose of the Qur’anic subject retrieval is to provide the user with precise information, the placement of the general and specific statement under one heading should be made with great caution by the compiler. For example:

"Divorced women shall wait by themselves three menstrual courses" (2:228)

«وَالْمُطَلَّاتُ يَتَرَبَّصْنَ بِأَنْفُسِهِنَّ ثَلَاثَةَ قُرُوءٍ
» (٢٢٨:٢)

"O you who believe, if you marry believing women, and you divorce them before you touch them, you shall have no waiting period to reckon on them" (33:49)

«يَا أَيُّهَا الَّذِينَ ءَامَنُوا إِنَّا نَكَحْتُمُ الْمُؤْمِنَاتِ ثُمَّ
طَلَقْتُمُوهُنَّ مِنْ قَبْلِ أَنْ تَمْسُوهُنَّ فَمَا لَكُمْ عَلَيْهِنَّ
مِنْ عِدَّةٍ تَعْتَدُونَهَا (٤٩:٣٣)

"And those of your women who despaired of menstruating, if you are in doubt, (during the waiting period) then their waiting period shall be three months; and those too who have menstruated as yet" (65:4)

«وَالنِّسَاءُ الَّتِي يَبْسُنَ مِنَ الْمَحِيضِ مِنْ نِسَائِكُمْ إِنْ
أَرْتَبْتُمْ فَعِدَّتُهُنَّ ثَلَاثَةُ أَشْهُرٍ وَالنِّسَاءُ لَمْ يَحِيضْنَ
» (٤:٦٥)

". . . . And those who are pregnant, their term is when they deliver their burden" (65:4)

« وَأُولَاتُ الْأَحْمَالِ أَجَلُهُنَّ أَنْ يَضَعْنَ
حَمْلَهُنَّ (٤:٦٥)

In the above example verse (2:228) is a general statement addressing all divorced women, and valid as a general application in establishing that the waiting period for the divorced women before getting remarried is three menstrual courses. However, the two following verses, (33:49) and (65:4), include three exceptions to that general statements viz, those women who are divorced before any sexual intercourse with their husbands, who are not entitled to any waiting period; those women who are divorced during their pregnancy, whose waiting period ends by delivering their babies; and those women who are divorced and who are in doubt about their menstruation period, whose waiting period is three months.

³⁴ al-Suyûṭî, *op.cit.*, vol. II, p.32.

In the above case, if the compiler attempts to provide a heading for these three verses, the headings should be very general to include the three cases,; for instance, *al-ṭalâq wa al-'iddah* الطلاق والعدة (divorce and waiting period), without going into too much detail. If the compiler intends to be more specific than that, the three verses should be separated and placed under three distinct headings that precisely reflect their contents. For instance, *al-'iddah bi-ḥisâb 'adad al-ḥaydât* العدة بحساب عدد الحيضات (waiting period calculated by menstrual courses) as indicated in (2:228), *lâ 'iddah 'alâ al-iṭlâq* لا عدة على الإطلاق (no waiting period) as indicated in (33:49), *al-'iddah bi-ḥisâb al-wilâdah* العدة بحساب الولادة (waiting period considered by delivering a baby) as indicated in (65:4) and *al-'iddah bi-ḥisâb al-ashhur* العدة بحساب الأشهر (waiting period calculated by months) as indicated in (65:4). This goes for every treatment of the general and the specific statement of this type. However, in the case of indeterminate verses, the treatment should consider the general heading rather than the specific one. For example:

"O you who believe, requital for bloodshedding is decreed for you; the free man for the free man, the slave for the slave, and the female for the female. But he who is pardoned by one's (slain) brother, will pay something of blood fine. This is to be carried out in kindness and dealt with in equity. This is an alleviation and mercy from your Lord. But he who transgresses after that will have a grievous torment." (2:178)

يَا أَيُّهَا الَّذِينَ ءَامَنُوا كُتِبَ عَلَيْكُمُ الْقِصَاصُ فِي
الْقَتْلِ ۖ الْحُرُّ بِالْحُرِّ وَالْعَبْدُ بِالْعَبْدِ وَالْأُنثَىٰ
بِالْأُنثَىٰ ۚ فَمَنْ عَفِيَ لَهُ مِنْ أَخِيهِ شَيْءٌ فَاتَّبِعْهُ
بِالْمَعْرُوفِ وَأَدِّءْ إِلَيْهِ بِإِحْسَانٍ ۗ ذَٰلِكَ تَخْفِيفٌ مِّن
رَّبِّكُمْ وَرَحْمَةٌ ۗ فَمَنِ اعْتَدَىٰ بَعْدَ ذَٰلِكَ فَلَهُ عَذَابٌ
أَلِيمٌ ﴿١٧٨:٢﴾

"And We decreed for them therein: life for life, and eye for eye, and nose for nose, and ear for ear, and tooth for tooth, and for wounds retaliation. But whoever foregoes it as a charity, that shall be an expiation for him. And whoever judges not by what God has sent down, such as they are the iniquitous." (5:45)

وَكُتِبْنَا عَلَيْهِمْ فِيهَا أَنْ نَنفُسَ بِالنَّفْسِ وَالْأَعْيُنَ
بِالْأَعْيُنِ وَالْأَنْفَ بِالْأَنْفِ وَالْأَنَّنَ بِالْأَنَّنِ وَالسِّنَّ
بِالسِّنِّ وَالْجُرُوحَ قِصَاصًا ۚ فَمَنْ تَصَدَّقَ بِهِ فَهُوَ
كَفَّارَةٌ لَهُ ۚ وَمَنْ لَّمْ يَحْكَمْ بِمَا أَنزَلَ اللَّهُ فَأُولَٰئِكَ
هُمُ الظَّالِمُونَ ﴿٤٥:٥﴾

Al-Wâhidî asserts that verse (2:178) refers to a specific occasion of revelation, identifying the two Jews tribes "Qurayz" and "al-Nadîr", who used to exact revenge by slaying a free man for a slave.³⁵ On the other hand, Ibn Kathîr in his opinion appeals to the principle of abrogation³⁶, in which case verse (2:178) is abrogated by verse (5:45), as indicated by the phrase "a soul by a soul" without any classification.³⁷ Whereas al-Qurṭubî provides another view which indicates that verse (2:178) is very specific in revealing that it is an explanation of the generality of verse (5:45).³⁸

The compiler who comes across this type of verse should consider the general case by placing the verse under the general heading, for instance, *al-qatl* القتل (slaying), taking account of the occasion of revelation in a footnote in connection with the verse to represent the other view. This treatment should be consistent all through the compilation process, without any attempt to indicate one view superior to another.

2.3.3. Judaica

The exegetical transmissions from the Prophet (pbuh) through the companions and their successors covered all the verses in the Qur'an which require explanation. After the death of the Prophet (pbuh), scholars of the followers tried to bridge this gulf by relying on their knowledge of the language and the historical circumstances reported from the Prophetic traditions. Some scholars, who are more inquisitive than others, wished to know the details of the various stories in relation to a well-known person, place or happening mentioned indirectly in the Qur'an. For answers to their inquiries they

³⁵ al-Wâhidî, *op.cit.*, p.26.

³⁶ The principle of abrogation emerged in the Qur'an because of the existence of the verse 2:106 and the unexplained apparent contradiction of certain verses in relation to other verses in the Qur'an or in relation to approved Hadiths. Muslim scholars have differed in their opinions about the genuine existence of abrogation in the Qur'an. They also differ about the extent to which abrogation occurs in the text of the Qur'an. In many cases this is due to the mixing of general and specific statements with unexplained ones, or due to the extending of the application of the Hadith.

³⁷ Ibn Kathîr, *op.cit.*, vol.I, p.215.

³⁸ al-Qurṭubî, *op.cit.*, vol.II, pp.246-247.

consulted Muslim converts (the people of the Book), and so stories from *isrâ'iliyyât* إسرائيليات (Judaica) found their way into exegeses.³⁹ These *isrâ'iliyyât* إسرائيليات have to be taken into consideration during the compilation process of the retrieval system, so the compiler needs to watch out for all the controversies that result from different reports. For example, consider the verse:

"Have you not known of the people of the Children of Israel after Moses, when they said to a prophet of theirs, 'Set up for us a king, that we fight for the cause of God.' He said, 'Might it be that, if fighting is decreed for you, you will not fight.' They said, 'Why should we not fight in the cause of God, when we were expelled from our habitations and left our children? But when fighting was decreed for them, they turned away except a few. Surely God is Cognizant of the iniquitous.'" (2:246)

«أَلَمْ تَرَ إِلَىٰ أَنمَلًا مِنْ بَنِي إِسْرَائِيلَ مِنْ بَعْدِ
مُوسَىٰ إِذْ قَالُوا لِنَبِيِّ لَهُمْ أَبْعَثْ لَنَا مَلِكًا نَقْتُلُ
فِي سَبِيلِ اللَّهِ قَالَ هَلْ عَسَيْتُمْ إِنْ كُتِبَ عَلَيْكُمُ
الْقِتَالُ أَلَّا تُقَاتِلُوا قَالُوا وَمَالِنَا أَلَّا نَقَاتِلَ فِي
سَبِيلِ اللَّهِ وَقَدْ أَخْرَجْنَا مِنْ دِيَارِنَا وَأَبْنَانِنَا
فَلَمَّا كُتِبَ عَلَيْهِمُ الْقِتَالُ تَوَلَّوْا إِلَّا قَلِيلًا مِّنْهُمْ
وَاللَّهُ عَلِيمٌ بِالظَّالِمِينَ» (٢٤٦:٢)

It is not clear in the above passage whether the Prophet referred to is one of those whose names are mentioned in the Qur'an. There are many disputes about his name. Al-Ṭabarî based his opinion on different authorities to conclude that he was a prophet named *Sham'un* شمعون (Shamun) whose mother had prayed to God to give her a son. When her prayers was answered, she called the boy Shamun, meaning, 'God has heard my prayer'. Al-Ṭabarî relates that the prophet was *Yūsha'* يوشع (Joshua), a word based on a literal reading of the phrase "after Moses".⁴⁰ Al-Suyūṭî who preserves a full chapter in his *itqân* concerning the unknown persons in the Qur'an (*al-mubhamât* المبهمات), states that the prophet's name was *Sham'un* شمعون, *Yūsha'* يوشع and *Ismâ'il* إسماعيل (Ishmael)⁴¹, while al-Qurṭubî states that he was *Sham'un* شمعون, *Ismâ'il* إسماعيل and *Sam'un* سمعون (Samun).⁴²

³⁹ Ibn Khaldûn, *op.cit.*, pp.439-440.

⁴⁰ al-Ṭabarî, Abû Ja'far Muḥammad ibn Ḥusayn (1954), *jâmi' al-bayân fî tafsîr al-Qur'ân*, Cairo, vol.V, pp.291-292. [Arabic text, reproduced]

⁴¹ al-Suyūṭî, *op.cit.*, vol.II, p.316

⁴² al-Qurṭubî, *op.cit.*, vol.III, pp.243-244.

In the above case, the compiler is presented with four possible headings under which the verse could be placed: *Sham'ûn* شمعون, *Yûsha'* يوشع, *Ismâ'il* إسماعيل, and *Sam'ûn* سمعون. The criterion of acceptance or rejection of any of these should be determined by the compiler by reference to the proved Hadith. If it is not provided, consideration should be given to Ibn Taymiyyah's (died 728 A.H./1328 A.D.) classification: (a) those known to be false and (b) those unknown whether true or false.⁴³ As for (a), Ibn Taymiyyah states that all should be rejected. As for (b), he asserts that it is very important not to believe or to deny them. Ibn Taymiyyah's last statement is based on the Prophet's saying "If the people of the Book tell you something, do not either accept it as true or reject it as false, for they may tell you something true and you may reject it as false or tell you something which is false but you may accept it as true."⁴⁴

From the indexing point of view, the validity of a statement is related to the significance the compiler wishes to attach to such details. These details could be of great importance for compilers in the field of history, but they may not make much difference in other fields. In the case of the former, the authenticity of the reports should be provided in the footnote to eliminate any doubt about the sources. Otherwise, it is recommended that such details be avoided. This policy will prevent the compiler from providing dubious information.

2.4. Theological Aspects

Throughout the fourteen centuries of Muslim scholarship, different opinions have been introduced into the field of exegesis, each of them reflecting the intellectual endeavours of Muslims in different branches of thought, so that there could be seven or more different opinions on the interpretation of a single Qur'anic word or phrase. These differences occurred not only among

⁴³ Ibn Taymiyyah, Taqiyy al-Dîn ibn 'Abd al-Ḥalîm (1979), *muqadimah fî usûl al-tafsîr*, Beirut, pp.56-58. [Arabic text, reproduced]

⁴⁴ *Ibid.*

authorities in different sects, but also among authorities within the same sect. The compiler must, therefore, be aware of the fact that in some verses the commentator might find an opportunity to reveal or impose his own doctrine. In such cases the compiler must have developed his rules of thumb in order to determine what to choose and what not to, as reliable interpretations.

2.4.1. The intersects

The intersects and related schools concentrated their attention on the interpretation of those verses that strengthened their views on the foundation of the words of the Qur'an. Anything contrary to these doctrines was explained away by allegorical or rhetorical manipulation of the main word in the verse.

Mu'tazilite commentaries reflect the influence of their doctrines⁴⁵ on their interpretations of those Qur'anic verses which make any reference to their beliefs⁴⁶. For example:

"Say: 'I take refuge with the Lord of the creation, *min sharmâ khalaq*, and from the evil of the complete darkness when it enshrouds, and from the evil of those who inspire complexities and from the evil of an envier when he envies" (113:1-5)

«قُلْ أَعُوذُ بِرَبِّ الْفَلَقِ، مِنْ شَرِّ مَا خَلَقَ، وَمِنْ شَرِّ غَاسِقٍ إِذَا وَقَبَ، وَمِنْ شَرِّ النَّفَّاثَاتِ فِي الْعُقَدِ، وَمِنْ شَرِّ حَاسِدٍ إِذَا حَسَدَ» (٥-١:١١٣)

⁴⁵ Mu'tazilite is the name of the great theological school which created the speculative dogmatics of Islam. The name Mu'tazilite [Arabic *Mu'tazalah*] was derived from a schism which took place in the circle of al-Ḥasan al-Baṣrī after laying down their doctrine of the intermediate state between belief and unbelief. Wāṣil ibn 'Aṭā' and 'Amr ibn 'Ubaid are said to have separated [Arabic *i'tazala*] from the al-Ḥasan's circle to found an independent school. Mu'tazilite theology and related schools of theology are summed up under five principles which to be recognized as a Mu'tazilite one must accept in their integrity. The fundamental doctrine of the school is the absolute unity of God which holds the creation of the Qur'an and the impossibility to seeing God physically in the world or in the Hereafter. The second holds that God is creating only what is justice and as a rationality God does only what is good to man. The third maintains that people who commit major sins occupy an intermediate state between belief and unbelief. The fourth provides that those who commit a major sin and who died without repentance will suffer eternal punishment in hell, and the fifth claims that drawing a sword for enjoining good and forbidding evil is a necessary duty when the removal of evils disapproved of by religion is not possible in any other way. (al-Dhahabī, Muḥammad Ḥusayn (1967), *al-tafsīr wa al-mufasssīrūn*, Cairo, vol.I, pp.368-371. [Arabic text].

⁴⁶ *Ibid.*, p.372.

Traditional Sunnite commentators understand the phrase *min sharr mâ khalaq* *مِنْ شَرِّ مَا خَلَقَ* literally; "from every evil of what God created". This could be Satan or Hell, or any evil thing.⁴⁷ Al-Zamakhsharî, the Mu'tazilite commentator, believes that it is not worthy of God's justice and rationality to create evil. Al-Zamakhsharî interprets the phrase *min sharr mâ khalaq* *مِنْ شَرِّ مَا خَلَقَ* as "from His creatures' evil behaviour" or as he states *min sharr khalqih* *مِنْ شَرِّ خَلْقِهِ*. He further adds that this is normally when the intelligent creatures do bad things such as corruption, sins and mutual harm. Also, he adds that it includes what unintelligent creatures do such as when animals bite, etc., and he asserts that this also includes the ability God placed in things which harm like fire or poison.⁴⁸

By comparing the above two interpretations, the compiler is likely to place the verse, for instance, under the heading *al-makhlûqât al-sharîyah* *المخلوقات الشريفة* (evil creatures), if he decides to adopt al-Zamakhsharî's view. However, if the compiler chooses the traditional Sunnite interpretation, this passage will be placed under the heading *al-shar-khalquh* *الشر - خلقه* (God's evil creation).

However, if the compiler wishes to refer to al-Zamakhsharî's views that differ from traditional commentators he is likely to provide in a footnote references to the other views, and to give the user in the acknowledgment an indication of the criteria for selecting a certain type of exegesis. Ibn Taymiyyah was highly critical of the Mu'tazilite commentaries, and paid special attention to al-Zamakhsharî's commentary considering it to be one of those works which attempt to force the Qur'an to accept unfamiliar meanings.⁴⁹ However, though competent Muslim scholars concede to al-Zamakhsharî a mastery of the rhetorical and stylistic language of the Qur'an, they do not fail to warn the

⁴⁷ al-Qurtubî, *op.cit.*, vol.XX, p.256; Ibn Kathîr, *op.cit.*, vol.IV, p.613.

⁴⁸ al-Zamakhsharî, *op.cit.*, vol.IV, p.300.

⁴⁹ Ibn Taymiyyah, *op.cit.*, p.82.

innocent seekers of linguistic interpretation of the dangers of al-Zamakhsharî unorthodox commentary.⁵⁰

Another difference in commentators' opinions will also arise as a result of Shi'ite belief.⁵¹ The Shi'ite commentators employ the verses of the Qur'an to serve this theological doctrine which aim to prove 'Aliyy's privileged and exalted status and the Prophet's intention to appoint him as his successor. They also mention statements on the authority of the so-called Imams to manage interpretations of the Qur'anic verses to their liking.⁵² For example:

"And when His Lord tried Abraham with words which he fulfilled, He said, 'I have made you an Imam for the people.' He said, 'And of my descendants?' He said, My covenant shall not extend to the iniquitous.'" (2:124)

«وَإِذْ أَمَرْنَا إِبْرَاهِيمَ رَبَّهُ بِكَلِمَاتٍ فَاتَمَّهِنَّ قَالَ
إِنِّي جَاعِلُكَ لِلنَّاسِ إِمَامًا قَالَ وَمِنْ نُرِّيَّتِي قَالَ
لَا يَنَالُ عَهْدِي الظَّالِمِينَ» (١٢٤:٢)

Sunnite Muslim commentators, of the main stream of Islam, refer to the statement *fa'tamahun* فاتهم (which he fulfilled) as 'the missions that God appointed Abraham to fulfil'.⁵³ More cautious, al-Ṭabarî prefers not to specify *kalimât* كلمات (words) with which God tested Abraham. He argues that there is no mention of *kalimât* كلمات in the Qur'an, nor has there been an accepted Hadith from the Prophet (pbuh) concerning this matter.⁵⁴ However, both al-Ṭabarî and al-Qurṭubî explain the statement *innî jâ'iluka lil-nâs imâmâ* إِنِّي جَاعِلُكَ لِلنَّاسِ إِمَامًا (I have made you an Imam for the people) as 'I shall

⁵⁰ al-Dhahabî, *op.cit.*, vol.I, pp.435-443.

⁵¹ The Shi'ites is the general name for a large group of very different Muslim sects. The name Shi'ite [Arabic *shi'ah*] more precisely *shi'at* 'Aliyy, means a party of 'Aliyy. The fundamental article to them is that the imamate in Islam is an essential base of Islamic belief and it is not an issue to be left to a public decision. The prophet is the one responsible to fill the imamate office and 'Aliyy ibn Abî Ṭâlib is the legitimate successor (Caliph) of the Prophet (pbuh). (al-Shahrastânî, Muḥammad ibn 'Abd al-Karîm, (1976) *al-milal wa al-nihal*, Cairo, p.146. [Arabic text, reproduced].

⁵² al-Dhahabî, *op.cit.*, vol.II, p.12

⁵³ al-Qurṭubî, *op.cit.*, vol.II, p.97; Ibn Kathîr, *op.cit.*, vol.I, p.170.

⁵⁴ al-Ṭabarî, *op.cit.*, vol.III, p.15.

make you a leader of those who shall come after you of the people who have faith in me and my messengers.'⁵⁵

Shi'ite tradition presented by al-Ṭabarsî (died 538 A.H./1143 A.D.) believes in the Imâmate. They take the above verse to prove that there is emphatic support for their position. Al-Ṭabarsî appeals to the authority of al-Mufaḍḍal ibn 'Umar al-Ju'fi, who asked Ja'far al-Ṣâdiq about the *kalimât* **كلمات** ; the latter said, "These were the words which Adam received from his Lord, and He turned toward him. They are what Adam said: 'My Lord, I beg you, for the sake of Muḥammad, Fâtimah, 'Aliyy, Ḥasan, and Ḥusayn to turn toward me, and He turned toward him for truly He is the Relenting, the Merciful'"⁵⁶. Al-Mufaḍḍal further asked, "O son of the prophet of God what does He mean by His saying, *fa'tamahun* **فاتمهن** (which he fulfilled)" He answered, "He enumerated them [the imams] till the one who shall be raised by God; twelve imams, nine of whom are of the descendants of Ḥusayn."⁵⁷ Al-Ṭabarsî further asserts that God made Abraham an imam after he had made him a prophet. Thus the office of an imam is higher than that of a prophet but lower than that of an apostle.⁵⁸

From the above interpretation, the compiler would place the verse, for instance, under the heading Adam **آدم** , because the phrase makes reference to those revealed to Adam. Also the verse could be placed under the heading "al-Qa'im" **القائم** , the twelfth imam, since the concept of imamate is considered in the interpretations. On the other hand, if the compiler attempts to refer to the main stream Sunnite view, the whole verse would be placed under the heading *Ibrâhîm* **إبراهيم** (Abraham).

The criterion for selecting the headings should deliberately reflect the obvious lexical meaning. However, in choosing a criterion for selecting the

⁵⁵ al-Qurṭubî, *op.cit.*, vol.II, p.107; al-Ṭabarî, *op.cit.*, vol.III, p.18.

⁵⁶ see verse (2:37).

⁵⁷ al-Ṭabarsî, Abû 'Aliyy al-Faḍl ibn al-Ḥasan (1961), *majma' al-bayân fî tafsîr al-Qur'ân*, Beirut, vol.I, p.454. [Arabic text, reproduced].

⁵⁸ *Ibid.*, p.456.

commentaries, an initial operational study should be made. A recent study done by Ayoub⁵⁹, an Arab scholar of Shi'ite background, presented the understanding of the Qur'an offered by significant interpreters of different schools of thought. Ayoub is quite clear about what he was seeking to accomplish. The explanatory notes in the book seem not to reflect his own understanding of the Qur'anic verses, but to crystallize the main trends in Islamic thought from the classical period to the present era as they are expressed in some major commentaries. His role in this study is that of a scholar reporter. To achieve this, he selected the first two chapters and applied the test to them. In this examination, Ayoub reports the trends in Qur'an interpretation that depend primarily on traditional sources from the prophet (pbuh). The Shi'ite commentators selected are; al-Qummî (died 320 A.H./939 A.D.)⁶⁰ and al-Ṭabarsî to represent the classical Shi'ite view point and Ṭabṭabâ'î to represent the modern Shi'ite school.

Another more interesting difference in interpretation among commentators would arise if the compiler were also to make reference to Kharijite commentaries.⁶¹ However, the Kharijite interpret the Qur'an in the light of their doctrine, anything contrary to this doctrine is explained by allegorical or rhetorical manipulation of the main word in the verses⁶². For example:

⁵⁹ Ayoub, Mahmud (1984), *The Qur'an and Its Interpreters*, New York.

⁶⁰ al-Qummî, 'Aliyy ibn Ibrâhîm

⁶¹ Kharijite are the members of the earliest religious sects of Islam. They had never had any true uniform body of doctrines, though their teachings seem to hold the views of a number of independent sub-sects. The name Kharijite [Arabic *khawârij*] was linked with the occasion of the proposal presented to 'Aliyy ibn Abî Ṭâlib by Mu'âwiyah ibn Abî Sufyân during the battle of Ṣiffîn to settle the differences arising out of the murder of 'Uṭhmân ibn 'Affân, by referring it to two arbitrators who would pronounce judgement according to the Qur'an. One group of warriors of 'Aliyy's army vigorously protested against the setting up of human tribunal above the word of God. On this occasion they left the army "went out" [Arabic *Kharaj*] to join the rebel camp which the sect *Khawârij* owes its name to. The most common article of faith the Kharijite sects share is the free vote of the community to appoint to the supreme dignity of the caliphate. This also includes the right of every believer who is morally and religiously irreproachable to become caliph (the qualification of Quraysh birth is not required), and the obligation on believers to proclaim illegitimate and depose the caliph who has gone off God's path. Another caliphate article is the absolute rejection of the doctrine of justification by faith without works. This serves to treat those who commit a major sin as unbelievers. (al-Dhahabî, *op.cit.*, vol.II, pp.300-302.)

⁶² *Ibid.*

"And if two parties of the believers fight one another, reconcile between them. But if one of them becomes aggressive against the other, then fight the one that is aggressive till it reverts to God's behest. Then, if it reverts, reconcile between them with equity and be just, for truly God loves the just. Surely the believers are brethren; so reconcile between, and venerate God, that perhaps you have mercy." (49:9-10)

«وَأِنْ طَافَتَا مِنْ الْمُؤْمِنِينَ فَاصْلِحُوا بَيْنَهُمَا فَإِنْ بَغَتْ إِحْدَاهُمَا عَلَى الْأُخْرَى فَقَاتِلُوا الَّتِي تَبْغِي حَتَّى تَفِرَّ إِلَى أَمْرِ اللَّهِ فَإِنْ فَاتَتْ فَاصْلِحُوا بَيْنَهُمَا بِالْعَدْلِ وَأَقْسِطُوا إِنَّ اللَّهَ يُحِبُّ الْمُقْسِطِينَ، إِنَّمَا الْمُؤْمِنُونَ إِخْوَةٌ فَاصْلِحُوا بَيْنَ أَخْوَيْكُمْ وَاتَّقُوا اللَّهَ لَعَلَّكُمْ تُرْحَمُونَ» (٤٩: ٩-١٠)

The traditional Sunnite commentators refer to the statement *wa in ṭā'ifatān min al-mū'minīna iqtatalū* (if two parties of the believers fight one another) as a clear indication from God that the believers could fight each other and still be called believers.⁶³ However, their understanding of *fa'aṣliḥū baynahumâ* (reconcile between them) is as a reference to those who are taking on the role of reconciliation to do justice between them and to make sure that they will not ask for retaliation or blood-money.

Itfīsh (died 1332 A.H./1914 A.D.)⁶⁴, the Kharijite commentator, believes in line with the fundamental Kharijite views of rejecting the arbitration between 'Aliyy ibn Abî Ṭālib and Mu'āwiyah ibn Abî Sufyân that it refers to appointing arbitrators from both sides to vote for caliph instead of blood-shedding. In his commentary, Itfīsh goes on to interpret the above verse by claiming that reconciliation is justified by advice and calling for God's judgement not human agreement. Itfīsh further justifies his interpretation that both the parties are no longer considered as believers, by saying that what is mentioned in the verse as believers refers to the state they held before aggression.

⁶³ Ibn Kathīr, *op.cit.*, vol.IV, pp.225-226; al-Qurṭubī, *op.cit.*, vol.XVI, p.317.

⁶⁴ Itfīsh, Muḥammad Yūsuf (n.d.), *hamayân al-zâd ilâ dâr al-ma'âd*, Oman, vol.XII, p.517. [Arabic text]

On the other hand, the phrase *innamâ al-mû'minûna ikhwah fa' ašlihû bayna akhawaykum* إِنَّمَا الْمُؤْمِنُونَ إِخْوَةٌ فَأَصْلِحُوا بَيْنَ أَخَوَيْكُمْ (surely the believers are brethren; so reconcile between them) is referring to the state they were in before fighting started. Itfîsh based his argument on the Prophet's statement that no person claiming to be a believer commits adultery or drinks alcohol. Note that Itfîsh distinguished between believers only in name and those committed to their beliefs.

The compiler, faced with the above interpretation, is entitled to place the verse under a heading *al-ihtikâm ilâ Allah* الإحتكام إلى الله (calling for God's judgement), if Itfîsh's view is accepted, while the compiler will use a heading *al-išlâh* الإصلاح (calling for reconciliation), if the Sunnite commentators' interpretation is followed. Certainly it depends on the compiler whether the Kharijite view is acceptable or not, though in any case he has to provide a justification for his choice or provide a footnote related to the verse in question. According to al-Dhahabî, the most important source among the Kharijite is Itfîsh's commentary.⁶⁵

Another common difference of opinion among commentators results from the mystical approach in contrast to the lexical one. The Sufi⁶⁶ interpret the Qur'an on the basis of the transcendental intuition of the exegete. A commentary of this kind is characterized by the esoteric expression of hidden meanings. The spiritual aspects of human life and the vanity of the world are the central themes in their interpretations. Sufi's commentaries have been recognized as representing the mystical approach, which is a manifestation of the spiritual aspect of Qur'anic teaching.⁶⁷ For example:

⁶⁵ al-Dhahabî, *op.cit.*, vol.II, p.320.

⁶⁶ Sufi is the name given to the orders of Sunnite sect that concentrate on the inner dimension of worship. They are divided into orders and each order is subdivided as well into groups who are usually named after the founder of the order. The name Sufi [Arabic şûfiyyah] appeared for the first time in relation to the wearing of sūf (cloak of white wool). Later on, the word şûfiyyah was applied to the whole body of Muslim mystics as the term is used today (*ibid.*, p.337).

⁶⁷ al-Zurqânî, *op.cit.*, vol.I, pp.546-547.

"God there is no god but He, the Living, the Eternal Sustainer. Neither slumber takes Him, nor sleep. His is what is in the heavens and what is in the earth. Who is it that intercedes with Him save by His leave? He knows what lies before them and what is behind them. And they grasp naught of his knowledge, but of what He wills. His *kursî* embraces the heavens and the earth and tires Him not to uphold them both." (2:255)

«اللَّهُ لَا إِلَهَ إِلَّا هُوَ الْحَيُّ الْقَيُّومُ لَا تَأْخُذُهُ سِنَةٌ
وَلَا نَوْمٌ لَّهُ مَا فِي السَّمَوَاتِ وَمَا فِي الْأَرْضِ مَنْ
نَا الَّذِي يَشْفَعُ عِنْدَهُ إِلَّا بِإِذْنِهِ يَعْلَمُ مَا بَيْنَ
أَيْدِيهِمْ وَمَا خَلْفَهُمْ وَلَا يُحِيطُونَ بِشَيْءٍ مِّنْ عِلْمِهِ
إِلَّا بِمَا شَاءَ وَسِعَ كُرْسِيُّهُ السَّمَوَاتِ وَالْأَرْضَ
وَلَا يَئُودُهُ حِفْظُهُمَا وَهُوَ الْعَلِيُّ الْعَظِيمُ» (٢:٢٥٥)

The commentators of the Sunnite stream, for instance al-Qurṭubî, interpret the word *kursî* كرسى as an actual object containing the heavens and the earth; both the heavens and the earth are inside the *kursî* كرسى . They also say that *kursî* كرسى is the place of the footstool of God and that it has a squeaking sound like that of a new saddle. Ibn 'Arabî (died 638 A.H./1241 A.D.), the Sufî mystical commentator, interprets the word *kursî* كرسى to mean *al-'ilm* العلم (knowledge). He goes on to assert that "The *kursî* is the locus of knowledge as the heart is the locus of knowledge".⁶⁸ Ibn 'Arabî interprets the phrase *wa lâ ya'ûduhu hifzuhumâ* وَلَا يَؤُودُهُ حِفْظُهُمَا (and tires Him not to uphold them both) to mean "their preservation does not burden Him because they may have no existence without Him. Rather the realm of the ideal form is His inner dimension and the realm of forms is His outer dimension."⁶⁹

The compiler faced with the above two interpretations, will place the verse under the heading *'arsh al-Rahmân* عرش الرحمن (God's throne) if the traditionalist view is followed, but under *al-'ilm* العلم (knowledge), if ibn 'Arabî's view is adopted. As a matter of fact it is difficult to consider any mystical approach in constructing a subject retrieval system, as the mystical interpretation is based on esoteric interpretations of the hidden meaning, which can hardly be guessed by the user. Any attempt to use a hidden meaning as

⁶⁸ Ibn 'Arabî, Muḥyî al-Dîn (1978), *tafsîr al-Qur'ân al-Karîm*, Beirut, vol.I, p.143. [Arabic text, reproduced]

⁶⁹ *Ibid.*

opposed to the lexical one could lead to a failure in recall, as the lexical meaning is the main key to the user, the final beneficiary. Al-Zurqânî offers three rules for accepting the mystical interpretation: it should not contradict the apparent meaning of the style of the Qur'an; it should not claim exclusive authority in enfolding the true meanings of the Qur'an, and it should provide legitimate proof for it.⁷⁰

To conclude, the majority of Sunnite Muslim scholars have been highly critical of commentaries representing a specific school of thought, or a mystical point of view. The difference in methodology was classified as: *tafsîr bil-ma'îhûr* 73. تفسير إشارى *tafsîr ishârî* and *tafsîr bil-ra'y* 72, تفسير بالرأى *tafsîr bil-ra'y*,⁷¹ تفسير بالمأثور *tafsîr maḥmûd* 74, تفسير محمود and *tafsîr madhmûm* 75. تفسير مذموم. Regardless of this trend, the intention is to consider the different schools of thought since their opinions in connection with the compilation of a subject retrieval system are more liable to be considered as differences in interpretation than as schools of thought. Also the Qur'an has many levels of meanings and those which stem from the basic attitude of Sunnite commentators cannot be taken as the only ones useful for understanding the Qur'anic message. However, the compiler is not obliged to follow the above grouping of exegeses and may effectively reject some exegeses in their entirety. Alternatively, the compiler should develop his own

⁷⁰ al-Zurqânî, *op.cit.*, vol.I, p.549.

⁷¹ Those are explanations of the Qur'an which were traced back to source materials, the Qur'an, the Prophet, and the companions who were best known for their knowledge of interpretations. This type of commentary is regarded as a continuation of a chain of transmission of companions and their followers.

⁷² Those are explanations of the Qur'an which were based on sound opinion.

⁷³ Those are interpretations where an explanation of any passage or verse is an interpretation beyond its outer meaning, mainly in Sufî commentaries.

⁷⁴ Those are explanations which are in agreement with the sources of interpretation, i.e. Islamic law, historical evidences and the rules of the Arabic language.

⁷⁵ Those are explanations which are given without proper knowledge of the sources of interpretation.

criteria for accepting and rejecting an interpretation of a single word, verse or passage, based on the type of system adopted. Specifically, this should fulfil the essential qualifications of interpretation. These are the qualifications of commentators suggested by al-Suyûfî: the commentator must have sound faith and must strictly observe the precepts of Islam and avoid erroneous views and spurious traditions; he must also have a good intention in undertaking this task, i.e. to acquire wealth or prestige shouldn't be his objective; and he must be an authority in the science of the Arabic language, since linguistic ability is the main tool to understand the Qur'anic text. Al-Suyûfî states that if someone intends to explain the Qur'an by his own judgement, he must have the knowledge of at least fifteen important sciences of exegesis which are like tools for a commentator. These are language, philology, grammar, derivation, lexical meanings, rhetoric, metaphor, variant readings, foundations of religion, foundations of jurisprudence, occasions of revelation and stories, abrogator and abrogated, jurisprudence, Hadith, and talent.⁷⁶

2.4.2. The modernists

The term Modernist has been employed in this context to refer to a type of Qur'anic interpretation whose main concern is to understand the Qur'an in such a way as to fulfil modern society's requirement rather than to simply deal with theological and mystical disputes. The modernists' view is that many traditional interpretations have lost their validity with the changes in social and scientific conditions.⁷⁷ In their attempt to reconcile Qur'anic statements to the needs of modern society and science the approach of the modernists has been rejected by the supporters of the traditional philological and juridical interpretation of the Qur'an, who are apprehensive that verses of the Qur'an might be taken to legitimize modern occidental sciences and thereby forced to lose their eloquence and style. Their views are based on the belief that the

⁷⁶ al-Suyûfî, *op.cit.*, vol.II, pp.397-399.

⁷⁷ al-Dhahabî, *op.cit.*, vol.II, pp.495-504.

Qur'an should be understood by Arabs in the way it was understood by the early Muslims. One type of modernists, who must be considered by the compilers who attempt to establish a scientific Qur'anic retrieval system, are those who seek to prove that all the sciences have been mentioned or hinted at in the Qur'an.⁷⁸ The adherents of *al-tafsîr al-'ilmî* التفسير العلمى (scientific interpretation) who are dominant among the foreign philosophical and scientific influence in the Muslim world, want to draw proper attention among orientalists to the fact that the Qur'an hinted at the modern sciences fourteen centuries ago. Among them is Bucaille who presents several verses from the Qur'an to prove that there are incontrovertible evidences to support his view that the Qur'an clearly mentions ideas only recently confirmed by the contemporary sciences. For instance, on the two verses:

"And it is He who created the night and the day, and the sun and the moon, each swimming in an orbit."
(21:33)

«وَهُوَ الَّذِي خَلَقَ اللَّيْلَ وَالنَّهَارَ وَالشَّمْسَ وَالْقَمَرَ
كُلٌّ فِي فَلَكٍ يَسْبَحُونَ» (٢١:٢٣)

"It is not for the sun to overtake the moon, nor can the night outstrip the day. And each, in its orbit, is swimming." (36:40)

«لَا الشَّمْسُ يَنْبَغِي لَهَا أَنْ تُدْرِكَ الْقَمَرَ وَلَا اللَّيْلُ
سَابِقُ النَّهَارِ وَكُلٌّ فِي فَلَكٍ يَسْبَحُونَ» (٤٠:٣٦)

Bucaille's interpretation is,

" Here an essential fact is clearly stated: the existence of the Sun's and Moon's orbits, plus a reference is made to the travelling of these bodies in space with their own motion.

A negative fact also emerges from a reading of these verses: it is shown that the Sun moves in an orbit, but no indication is given as to what this orbit might be in relation to the Earth. At the time of the Qur'anic Revelation, it was thought that the Sun moved while the Earth stood still.^[79] This was the system of geocentrism that had held sway since the time of Ptolemy, Second century B.C., and was to continue to do so until Copernicus in the Sixteenth century A.D. Although people supported this concept at the time of Muhammad, it does not appear anywhere in the Qur'an, either here or elsewhere."⁸⁰

⁷⁸ *Ibid.*, pp.485-494.

⁷⁹ al-Qurtubî's remark on the verse (13:3) is that this is refuting the claim that the earth is shaped as a ball. He further adds that both the Muslims and the people of the Book consider the earth as flat and standing still and its movement is only due to earthquakes. (al-Qurtubî, *op.cit.*, vol.IX, p.280)

⁸⁰ Bucaille, M. (1982), *The Bible the Qur'an and Science*, Paris, p.166.

In relation to this view, Denffer, the conservative supporter of the eloquence and style of the Qur'an, makes his point in rejecting Bucaille's attempt in these words:

"But it is precisely this point which led to the great Copernican controversy only a few centuries ago and previously it was as staunchly asserted that the sun revolves around the earth! What guarantee is there that no new perspective in science will completely alter our present view? This is the best example to show that we should not accept scientific facts as absolute truths. They are rather what we presently know about them".⁸¹

Al-Bannâ represents the "intermediate" stage in his attempt to elicit the Qur'anic position as to scientific discoveries by dividing them into two categories: those theories which have been verified and hence become self-evident facts, and those theories or assertions which are yet to be verified. The first category is consistent with what the Qur'an has revealed, for instance, the formation of the clouds, the development of the embryo and the fertilization of plants by the wind. It is however unfair, argues al-Bannâ, to compare the second category with their counterparts in the Qur'an, such as the origin of man, the truth and reality of life and being, and the beginning of the cosmos, since the Qur'anic statements are true by nature, i.e. they need no verification.⁸²

To sum up, the Qur'an has always appeared as a book of many levels. In former times, the commentators were only able to distinguish apparent meanings of the verses which led them to draw conclusions on the basis of knowledge at the time in question. Therefore, it is appropriate to say that for old commentators, only certain verses of the Qur'an, whose exact meaning could only be defined by their understanding of the lexical meanings as well as the scientific knowledge of their time, have unavoidably given wrong interpretations. However, as linguistic knowledge was an essential tool for those commentators in observing the deep structure of Qur'anic statements, it was the contemporary knowledge that they had, which had an effect on the

⁸¹ Denffer, *op.cit.* (1985), '*ulûm al-Qur'ân*', U.K.: Leicester, pp.157-158.

⁸² al-Bannâ, Hasan (1979), *maqâsid al-Qur'ân al-Karîm*, Cairo, pp.21-22. [Arabic text]

unwarranted interpretations of these early commentators. The Qur'an is a book that has an absolutely fundamental religious objective, but it only requires interpreters to grasp the meanings of the words of the Qur'an in the space-time horizon. However, for scientific tasks, the total context should be studied, with no appeal to the metaphysical statements as they do not meet the normal situations. This also goes for other fields of study such as history, philosophy, etc.

2.5. Conclusion

Many verses of the Qur'an were revealed in the form of commands, prohibitions, reports of bygone prophets and their people, parables and admonitions. Hence, they are clear in their meanings and liable to only one interpretation. Other verses, which are general in application, should be interpreted according to the lexical meanings of the verses, informed by the juridical significance as well as the historical context to give the full understanding of the verse, with no attempt to impose any inner or outer dimension on the literal sense of these verses. Moreover, the prophet's (pbuh) life, sayings and actions have served as examples for Muslims of all times, and his character should be considered in all practical interpretations of the Qur'an.

CHAPTER THREE

INFORMATION RETRIEVAL PROBLEMS

IN QUR'ANIC VOCABULARIES

3.1. Overview

The previous chapter has concluded the overall discussion of the general theoretical indexing problems that arise from differences of opinion among commentators regarding Qur'anic interpretation. The understanding of such problems is very important to the compiler of a Qur'anic retrieval system in order to reduce the element of subjectivity in understanding the text and hence to match the users' needs as closely as possible. However, this discussion has been concluded without seriously considering what are the criteria which lead the indexer to select sequences of words with a particular meaning to represent the subject in mind. In other words, despite the fact that the understanding of the Qur'anic verses is very important since it deals with the text of the Qur'an itself, the placement of the relevant subject under an imprecise heading will result either in a failure to recall the relevant verses or in the retrieval of irrelevant verses. To plug this loophole, a control of the vocabulary of the headings that describe these verses is needed. In a controlled language a heading could also be referred to as an index term, descriptor or keyword¹. The norm in choosing a heading is that headings should preferably be nouns.

This chapter studies vocabulary control as applied to the Arabic language and applies the main ideas in this area to Qur'anic terminology. The issues to be covered in this chapter are: the ambiguous meanings of certain words, the choice of the forms of words, the existence of synonyms, methods of organizing and displaying the descriptors, and the relationship among them.

¹ Lancaster (1972), *op.cit.*, p.115.

3.2. Homographs

Homographs, as defined in this study, refer to words or phrases that have more than one meaning. While indexing, homographs raise questions for the user: whether this or that meaning is intended by the word? The existence of homographs in the Qur'an has been recognized from an early date by Muslim scholars. Al-Damaghânî, for instance, who compiled a whole book of Qur'anic homographs, shows that a single word in the Qur'an can have several meanings.² For instance, the word 'ayn عَيْن could be a reference to *nab' mâ'* نَبْعُ مَاء (a spring of water), *nahr* نَهْر . (a river), 'ayn عَيْن (an eye), *nazar* نَظَرَ (seeing), or *ri'âyah* رِعَايَة (care).

Another form of homographs is the artificial one caused by the absence of vowel signs from the Arabic alphabet³. For instance, the word *dyn* دَيْن could be read without vowel signs as *dayn* دَيْن (debt), or *dîn* دِين (religion). However, although this type of homographs is not in the printed copy of the Qur'an nowadays, it is artificially created between several words once the vowel signs are omitted.

In the above two cases, unless the compiler provides the user with the exact meaning that the word intends, the user may recall irrelevant verses if the word in question has meanings other than the one the user seeks. However, for the purpose of indexing, homographs may be treated on two different levels: those which relate to natural homographs and those which relate to artificial homographs. Natural homographs have been qualified by 'Abd al-Hâdî in two ways: first, by adding a qualifier term to the homographic word in order to make its meaning more specific; secondly, by providing a distinguisher term in

² al-Damaghânî, *op.cit.*

³ The Arabic language originally had no signs for the vowels. To indicate the long and short vowels, early Arab grammarians made use of the three consonants that come nearest to them in sound, *alif* for *â*, *yâ'* for *î* and *wâw* for *û*. Later on short vowels $\underline{\text{ـ}}$ for a, $\overline{\text{ـ}}$ for i, and $\underline{\text{ـ}}$ for u were derived from *alif*, *yâ'*, and *wâw* respectively.

brackets in front of the homographic word to clarify its meaning.⁴ For instance, applying 'Abd al-Hâdî's first method to the term 'ayn عَيْن , this would appear as 'ayn al-ibṣâr عَيْن الإِبْصَار (eye), or 'ayn mâ عَيْن مَاء (spring of water), etc., while his second method makes the term look like 'ayn (baṣar) عَيْن (بَصْر) to denote the meaning eye, or 'ayn (mâ) عَيْن (مَاء) to denote the meaning spring of water, etc. As to the artificial homographs, Aman suggests the use of a clearer equivalent word instead of an ambiguous one. For example, a term such as *dyn* دَيْن which could refer to either *dayn* دَيْن or *dîn* دِين will be replaced by another unambiguous term that indicates the same meaning such as *qard* قَرْض (loan) or *dîyânah* دِيَانَة (religion)⁵.

As a matter of fact, in dealing with the problem of homographs, it may be preferable to keep the distinction between artificial homographs and natural homographs. Regarding the former, vowels should be provided to clarify their meanings, and there is no need whatsoever to discount the role of the vowel signs or to treat them as natural homographs. Aman's use of a clearer equivalent word is not necessary since the vowel signs can easily be provided in the printed material. Moreover, replacing the word with another is not usually easily accomplished, since an exact equivalent (to the replaced word) is not always available. For instance, Aman's use of *dayn* دَيْن as equivalent to *qard* قَرْض is not strictly accurate. In that case, the word *dyn* دَيْن which refers to religion should be read as *dîn* دِين , and the word *dyn* دَيْن which refers to debt should be read as *dayn* دَيْن . However, for the treatment of natural homographs, 'Abd al-Hadî's second criterion is more practical (i.e. providing a distinguisher between brackets), since adding the qualifier – as in the first method – requires searching for a suitable specifier for the homographic word, and it may also require some grammatical treatment of the phrase in order to

⁴ 'Abd al-Hâdî, Muḥammad Fathî (1981), *al-fahrasah al-mawḍû'iyyah: dirâsah fî rû'ûs al-mawḍû'ât al-'Arabiyyah*, Jeddah, p.93. [Arabic text]

⁵ Aman, M. M. (1968), *Analysis of Terminology: Form and Structure of Subject Headings in Arabic Literature and Formulation of Rules for Arabic Subject Headings*, Washington, D.C.: University of Pittsburgh, Ph.D. p.289.

fulfil the rules of Arabic grammar. In all these cases, if the compiler follows any of these methods he should be aware of all the natural and artificial homographs, and be systematic in clarifying the ambiguous words and providing this information to the user.

3.3. Forms Of Terms

With regard to the use of natural language, where the distinction between singular and plural forms is based on the particular context, compilers of information retrieval systems are usually obliged to choose between singular and plural forms to limit the choice of headings that are likely to describe the matter. According to Aitchison and Gilchrist, compilers working in the French and German languages prefer the singular, with a limited number of exceptions⁶, while those working in the English language tend to express terms according to rules set out in the manuals.⁷ In deciding on the use of singular and plural forms in a Qur'anic retrieval system, the question is whether and when to choose between singular, plural and dual? To decide the issue, discussion needs to be based on two approaches: an empirical approach, in which terms are extracted from the Qur'an during a primary state of indexing, and a committee approach, in which terms are suggested by experts in the field.⁸

In connection with the empirical approach, a survey by al-Suyûṭî shows that a word like *ard* أرض (earth) appears in the Qur'an only as singular. He argues that this is presumably because the plural *ardûn* أرضون (earths) is very difficult in terms of pronunciation and therefore not used in the Qur'an. He further adds that, unlike the word *samâ'* سماء (sky) whose singular and plural *samâwât* سماوات are used, the word *ard* أرض always appears in the singular. Even when the Qur'an gives the word *ard* أرض with reference to the plural, al-Suyûṭî notes

⁶ Aitchison, J. and Gilchrist, A. (1987), *Thesaurus Construction: A Practical manual*, London: Aslib, 2nd ed, p.14.

⁷ *Ibid.*

⁸ Lancaster (1972), *op.cit.* pp.29-32.

that the Qur'anic statement takes the form "God is He who created seven heavens, and of the earth their like" ⁹ *أَللَّهُ الَّذِي خَلَقَ سَبْعَ سَمَاوَاتٍ وَمِنَ الْأَرْضِ مِثْلَهُنَّ ...* On the other hand, al-Suyûṭî provides other cases which show that plural forms appear in the Qur'an without the provision of the singular or dual status. He argues that the word *albâb* أَبَاب (sensible) appears in the Qur'an only in a plural form since the singular form *labîb* لَبِيب is very difficult in terms of pronunciation.¹⁰

In the Qur'an (as is the norm of the Arabic language) the irregular plural¹¹ appears in different forms. Two types of the irregular plural appear in the Qur'an: the irregular plural which expresses the sense of numbers and the irregular plural which deals with different concepts. The irregular plural which is used to denote numbers has two categories: *jam' al-qillah* جمع القلة (plural of small quantity) which signifies a number not less than three and not more than ten, and *jam' al-kathrah* جمع الكثرة (plural of large quantity) which signifies a number not less than three but more than ten¹². In the Qur'an *jam' al-qillah* جمع القلة may be found in a word such as *ashhur* أشهر (lunar months) as mentioned in verse (2:197) "Pilgrimage is in the months already known ..."
¹³ *أَلْحَجُّ أَشْهُرٌ مَّعْلُومَاتٌ* and *jam' al-kathrah* جمع الكثرة, in a word such as *shuhûr* شهور as mentioned in verse (9:36) "The number of months, with God, is twelve in the Ordinance of God ..."
إِنَّ عِدَّةَ الشُّهُورِ عِنْدَ اللَّهِ اثْنَا عَشَرَ شَهْرًا فِى كِتَابِ اللَّهِ. However, where the irregular plural denotes two different concepts, as al-Suyûṭî argues, the difference between the concepts is very slight but observable. For instance, the word *abrâr* أبرار (pious) is used in the Qur'an in connection with

⁹ al-Suyûṭî, *op.cit.*, vol.I, p.409.

¹⁰ *Ibid.*, p.410.

¹¹ The Arabic language, in terms of the plural, has two types; a regular plural whose formation results from the addition of the case endings *-ûn* وون , *-în* ين , or *-ât* ات added to the singular form of the word, and an irregular plural whose formation changes the internal form of the singular by the addition or omission of letters to form the final state of the plural of the word.

¹² Ḥasan, 'Abbâs (1974), *al-naḥw al-wâfî*, Cairo, vol.IX, p.627. [Arabic text]

¹³ The reference here is to the three months *Shawwâl*, *Dhû al-Hijjah*, and *Dhû al-Qi'ddah* (al-Qurṭubî, vol.II, p.405).

the human being and the word *bararah* بررة in relation to angels.¹⁴ Similarly, the word *ikhwah* إخوة appears in the Qur'an to indicate spiritual brotherhood, while the word *ikhwân* إخوان indicates friendship.¹⁵

Empirically, there are three types of duals in the Qur'an. First, a dual whose singular and plural are provided¹⁶, for instance, *al-mashriqayn* المشرقين (two sunrises), the appearance of which in the Qur'an is complemented by the singular *al-mashriq* المشرق and the plural *al-mashâriq* المشارق. Secondly, a dual which designates two different objects used as substantive and denoting a quality that the two have in common, such as *al-thaqalân* الثقلان (two weights). In this context, the term *al-thaqalân* الثقلان signifies the two worlds of *al-ins* الإنس (mankind) and *al-jinn* الجن¹⁷. The term 'two weights' is used because both man and jinn share the same quality since they are heavy on earth¹⁸. Thirdly, a dual which designates two different objects constantly associated with one another by virtue either of their natural connection or opposition, where the dual may be named from any of the two, such as *al-bahrân* البحرين (two seas). In this context the dual *bahrân* البحرين may designate both *al-baḥr* البحر (sea) and *al-nahr* النهر (river)¹⁹.

¹⁴ Hasan, *op.cit.*, vol.IX, p.411.

¹⁵ *Ibid.*

¹⁶ The dual in the Arabic language is commonly employed to signify two individuals of a class or a pair of any thing. This is formed by adding *-ân* ان or *-ayn* ين for the masculine and *-tân* تان or *-tayn* تين for feminine, to the singular, with or without a slight change in the word ending.

¹⁷ The word *jinn* جن (sg. *jân* جان) with the root meaning *janna* جَنَّ to be covered or hidden. According to the Qur'an *jinn* جن is one of the nations created by God; they have some distinctive features from man, for example power, speed and ability to be visible in different shapes. However, the *jinn* race is divided into two types: believers and unbelievers. The latter are classified according to their power and their rejection of right guidance into three classes namely, *shayṭân* شيطان rebellious against any Divine law and representing the power of Evil, *mârid* مارد the wicked among the jinn and more crafty than *shayṭân* شيطان, and 'ifrîṭ عفریت a large powerful *jinn* جن reputed to be wicked and more powerful than the *mârid* مارد. See al-Ashqar, 'Umar Sulaymân, (1986), '*Alam al-jinn wa al-shayâtîn*', Cairo, pp.7-8 [Arabic text].

¹⁸ cf. al-Zamakhsharî, *op.cit.*, vol.IV, p.47.

¹⁹ cf. al-Zamakhsharî, *ibid.*, p.45.

From the above review of the norm of usage of Qur'anic terminology, it may be concluded that the compiler, who wishes to use Qur'anic norms as headings to describe the subject matter, is faced with the three forms of words: words that appear only in the singular, dual or plural; words which appear in the singular, dual and plural; and words which appear only in the singular and plural.

On the other hand, if the compiler intends to adopt the committee approach rather than the empirical, two different views are found regarding the use of singular, dual, or plural: first, 'Abd al-Hâdî suggests using the singular form to represent *naw'* نوع (kind), for example *al-amânah* الأمانة (trusteeship); to represent *'ilm* علم (discipline of science), for example *al-iqtisâd* الإقتصاد (economics); and to represent *ism jins* اسم جنس (mass noun), for example *al-kitâb* الكتاب (book). He also suggests limiting the use of the dual to nouns that cannot be denoted by either singular or plural forms, and using the plural form in all other cases, wherever possible²⁰. On the other hand, al-Ashqar suggests using the singular as a heading rather than the plural²¹. As a matter of fact, 'Abd al-Hâdî's suggestion is based on the ground that the plural is more formal than the singular and dual and more suitable for subdivisions²², while al-Ashqar gives three reasons: that both the dual and the plural are in fact derived from the singular; that the plural may have several forms in use; and that the singular is more restricted than other forms²³.

Lancaster in emphasizing the empirical approach states that it would be unwise due to the structure of the vocabulary to rely on the committee approach without the empirical since controlled vocabulary devices are essentially practical tools.²⁴ Lancaster summarizes the disadvantages of the committee approach: the subject specialist may not be fully familiar with the literature and/or with the

²⁰ 'Abd al-Hadî, *op.cit.*, pp.88-89.

²¹ al-Ashqar, Muḥammad Sulaymân (1972), *al-fahrasah al-hijâ' iyyah wa al-tartîb al-mu'jamî*, Kuwait, p.40. [Arabic text]

²² 'Abd al-Hâdî, *op.cit.*

²³ al-Ashqar, Muḥammad, *op.cit.*

²⁴ Lancaster. (1986), *op.cit.*, p.27.

requirements of the user; it complicates the task of indexing and searching by distinguishing terms that have no value for retrieval purposes; it inflates the importance of a particular specialism and causes an imbalance in the vocabulary system.²⁵

Lancaster's verdict has been indicated experimentally at different levels: Barhydt, who conducted a test to judge the performance of non-users, system's specialists and experts as compared to the ordinary users, claims in his findings that both the expert and the retrieval specialist showed fairly similar overall agreement in relevance judgment in comparison to the user's judgments but that none of them arrives at the ideal evaluation of the user²⁶. Rees and Schultz note that the highest agreement as to relevance was among specialists with less and less agreement as specialization decreased²⁷, while in terms of human consistency, Resnick and Savage found that there was a difference in the consistency in judging the same work at fairly widely separated points in time²⁸, and O'Connor concluded that rational discourse was important for

²⁵ *Ibid.*, p.28.

²⁶ Barhydt defines the three persons as: user, the individual posing the question; expert, a non-user subject specialist considered to be the peer of the user; system specialist, a non-user, non-subject specialist possessing considerable system experience but only moderate subject knowledge. In the experiment, thirty-seven questions were submitted by members of a pilot user group of educational researchers to an experimental retrieval system in education media. Both the expert and the system specialist were given copies of the questions as submitted in writing by the user and any additional information that the user provided and asked to indicate for each response either relevant or non-relevant. Barhydt, G. C. (1967), *The Effectiveness of Non-User Relevance Assessments*, *Journal of Documentation*, 23(2), pp.146-149.

²⁷ Rees and Schultz used 184 judges divided into six groups according to their educational and practical experience in relation to the research project and documents judged. The six groups were twenty nine medical scientists, thirty M.D.'s medical experts, both researchers and non-researchers, twenty five M.D. residents, twenty nine medical students and sixty one medical librarians. The groups judged sixteen documents relating to the three stages of a research project in sugar transport in the intestine. Rees, A. M. and Schultz, D. G. (1967), *A Field Experimental Approach to the Study of Relevance Assessments in Relation to Document Searching*, Cleveland: Ohio.

²⁸ Resnick and Savage randomly selected thirty four documents from the normal flow of IBM internal publications to be judged as either relevant or not relevant. The judges were technical personnel from IBM's Advanced Systems Development Division. They were divided into four groups in relation to their interests; fourteen people judged full texts, eight judged citations, twelve abstracts, and twelve index terms. A month later, the same experiment was repeated with the same groups over the same sets and instructions. Resnick, A., and Savage, T. R. (1964), *The Consistency of Human Judgments of Relevance*, *American Documentation*, 15(2), pp.93-95.

solving the differences that are due to textual nature, background knowledge and error of interpretation.²⁹ This, however, shows the difficulties that must be considered by the compiler in concentrating on the committee approach.

In comparing the two approaches, the empirical approach is much preferable and is recommended to the compiler. This is due the fact that, in using the committee approach the compiler has to avoid the difficulties that arise from the criteria for selecting the terms: whether to follow 'Abd al-Hadî's criterion in using the singular rather than the plural, or to follow al-Ashqar's criterion in using the plural rather than the singular; and he must also provide his justification in the retrieval system. Also he may have to take decisions on the basis of other considerations that have not been discussed. For instance, whether the different types of irregular plural are considered as having one meaning or two different meanings: whether the verses that include the words *ikhwah* or *ikhwân* are placed under the heading إخوة or إخوان, and what criterion of selection is used if the distinction is not considered. Also in the case of the dual, the compiler has to provide the methodological justification for placing the verses under the heading which designates two different objects such as *al-thaqalân* الثقلان, and *al-baḥrayn* البحرين. In that case, the compiler has to decide if all the verses that indicate *al-ins* الإنس and *al-jinn* الجن will be placed under the heading *al-thaqalân* الثقلان or if the two verses will be placed under two different headings indicated by *al-ins* الإنس and *al-jinn* الجن. Similar treatment applies to the heading *al-baḥrayn* البحرين, whether all the verses that indicate *al-baḥr* البحر

²⁹ O'Connor supplied eighty two documents and thirty questions. Both the documents used and the questions were in the field of documentation and judged independently by two judges expert in the same field. After independent judgment, the two judges compared their judgments and in the case of disagreements, they tried to resolve differences through rational discourse. Initially, there were thirty two independent agreements and forty eight disagreements by both judges. Of the forty eight disagreements, thirty four after discussion become resolved. However, the other fourteen disagreements (one judge judged a document as an answer to a question, the other did not) were separately resolved with agreement after discussion that the document was not an answer. Thus, a total of forty eight disagreements were completely resolved by logical procedures, and no disagreements remained. O'Connor, J. (1969), *Some Independent Agreements and Resolved Disagreements about Answer-Providing Documents*, *American Documentation*, 20(4), pp.311-319.

and *al-nahr* النهر will be placed under the heading *al-baḥrayn* البحرين or whether the two verses will be placed under two different headings namely, *al-biḥâr* البحار and *al-anhâr* الأنهار .

Moreover, the use of the empirical approach will eliminate many problems in the use of Qur'anic control of terminology. For instance, the criterion of choice between singular and plural distinguishes three categories: words that appear only in singular, dual or plural; words which appear in singular, dual and plural; and words which appear only in singular and plural with no dual. As for words that appear only in singular, dual, or plural, they should be presented as they appear in the Qur'an without reference to their dual or plural forms in the Arabic language. The purpose of these words in the Qur'an is to indicate specific meanings within the verses, and they are more likely to be maintained as headings to describe the same verses. Thus the word *ard* أرض is given in its singular form, the word *al-thaqalân* الثقلان is given in its dual form, and the word *albâb* الأبواب is provided in its plural form.

For words that happen to appear in the two forms of irregular plural, decisions can be taken on the basis of the primary distinction between those which differ in meaning and those which differ in number. For those which differ in meaning, the recommendation is to give them both as distinct headings, since both of them refer to two different concepts. For instance, *ikhwah* إخوة is used as a reference to blood brotherhood, and *ikhwân* إخوان is used as a reference to friendship. However, irregular plurals which differ in number are to be treated on two levels: in the case of those which appear in the alphabetic index, both should be used, while those which appear in the classified index (that which represents the verses) should be treated as synonyms, as for a heading, the one that appears most frequently in the Qur'an should be chosen. For example, between *ashhur* أشهر and *shuhûr* شهور, أشهر should be chosen, not شهور as the former is found six times in the Qur'an, while the latter appears only once.

For words which appear in the Qur'an in their singular, dual and plural forms, the recommendation is to use all of them in the alphabetic index, but to use *ism al-jins* إسم الجنس (mass noun) in describing the verse. For instance, *al-shurûq* الشروق should be used instead of the singular form *al-mashriq* المشرق, the dual form *al-mashriqayn* المشرقين, or the plural form *al-mashâriq* المشارق. The plural form is preferred to the singular and the dual, if the word has no mass noun. This is because the use of the plural might in many cases help to ensure that the meanings of certain homographic words are not ambiguous. For instance, if *a'yun* أعين as plural is used instead of *'uyûn* عيون, the homographic situation will disappear since *a'yun* أعين refers to eyes. However, if *'uyûn* عيون is used, the meaning will be springs of water; hence the use of the plural in some cases will eliminate the problem of homographs. Moreover, the choice of the plural form over the dual is recommended because the plural form is more familiar to the user than the dual. This also eliminates the need to change the grammatical form of the end case in the dual.

Following these recommendations, the compiler should decide whether to use the empirical approach, the committee approach or to use both of them, as the situation requires. In any case the compiler must be consistent in any decision through the whole compilation process.

3.4. Synonyms

In natural language, synonyms are terms that indicate the same meaning. In indexing, synonyms refer to terms whose meanings are the same in a wide range of contexts and which can be used virtually interchangeably³⁰. Synonyms in indexing do present a problem to the compiler who has to limit his choice to one term to represent the subject matter and thus avoid it from being scattered across the alphabet. Regarding the Arabic language, synonyms exist in the form

³⁰ British Standards Institutions (1979), *Guidelines for the Establishment and Development of Monolingual Thesauri*, BS 5723. p.9.

of nouns, verbs, articles and adjectives³¹. A great number of these words, Hasan claims, which appear to be synonyms, are actually not, since each of them is referring to a particular meaning which slightly differs from the others³². Originally there were two different views about the existence of synonyms in Arabic: on the one hand were those who supported the idea of synonyms as evidence of the richness of the language, and on the other, those who rejected the idea and asserted that every term has only one meaning, so that all supposed synonyms were in fact regarded as adjectives to the one term.³³ Though she further asserts that opinions about the existence and non-existence of synonyms in the Arabic language are not finally settled, Bint al-Shâti' declares without hesitation, that the Qur'an, which represents the Arabic language in its most elevated purity and originality, does not support the idea of synonyms. Any attempt to replace any Qur'anic word by another lessens the effect, beauty and essence of the Qur'an. Moreover, Bint al-Shâti' gives examples of some words which are treated in the natural language as synonyms, but which are not the same in their use in Qur'anic terminology. For instance, the words 'unuq عنق and raqabah رقبة which have the same lexical meaning "neck" have been used in the Qur'an differently; 'unuq عنق is used to express the same lexical meaning "neck", while raqabah رقبة is used metaphorically to refer to slave.³⁴

However, interchangeable vocabularies have, nonetheless, to be treated by the compiler who has to limit the number of choices of similar terms to present the same subject matter. The issue is, however, a technical rather than a linguistic one. In that sense synonyms in the Qur'an will be classified in two categories: true synonyms which are actually used interchangeably, and quasi-synonyms which are used with precise meanings and distinct concepts.

³¹ Hasan, *op.cit.*, vol.IV, pp.162-163.

³² *Ibid.*, p.168.

³³ Bint al-Shâti' (1964), *The Problem of Synonyms in the Light of Qur'an, Proceedings of the 26th International Congress of Orientalists, NewDelhi, January*, p.185.

³⁴ *Ibid.*, p.186.

Typical examples of true synonyms in the Qur'an are *al-Ka'bah* الكعبة , *al-bayt* البيت (the House), *al-bayt al-ḥarâm* البيت الحرام (the invaluable House), and *al-bayt al-'atîq* البيت العتيق (the old house), which all represent names being used in the Qur'an to refer to God's house that was built by Abraham. Another distinct type among true synonyms are the words *kibr* كبر, *istikbâr* استكبار, and *kibriyâ'* كبرياء which are all forms of nouns derived from the same root *KBR* with the root meaning of big and meaning literally to become big, puffed up, or big with pride.

Regarding quasi-synonyms, al-Suyûṭî who devotes a section in his book *al-itqân* to "words which are considered as synonyms but they are not" الألفاظ التي يظن بها الترادف وليست منه gives examples of some words that are indistinguishable among linguists, but distinguished in terms of the Qur'anic use. Among these are *al-khawf* الخوف and *al-khashyah* الخشية which both refer lexically to fear or fright, though in the Qur'an they are distinguished. Al-Suyûṭî asserts that *al-khashyah* الخشية is more intense than *al-khawf* الخوف . Moreover, *al-khashyah* الخشية is fear of a strong high authority such as God, while *al-khawf* الخوف is an indication of weakness in the person who might be afraid even from trivial issues.³⁵

As for the retrieval system, the compiler has to choose one term rather than another to represent the subject matter, so the question is which one to choose? As a matter of fact the criterion of selecting the preferred term is split between two approaches: that which tends to follow systematic steps to eliminate the nonpreferred terms, and that which rejects the idea of selection and seeks to provide all the terms. The followers of the former, those who tend to use only one term as a preferred one, are influenced by Cutter who was the first to devise coded rules for library catalogues³⁶. In advancing his criteria for the selection

³⁵ al-Suyûṭî, *op.cit.*, vol.I, p.413.

³⁶ Cutter, *op.cit.*

of the preferred terms, Cutter suggests that the choice should favour the heading that is less ambiguous in meaning, most familiar to the class of people who undertake the work, and which comes first in the alphabet³⁷. Applying Cutter's criteria to the above examples, the term *al-ka'bah* الكعبة will be the one which will be used as the preferred term. This is because the term *al-bayt* البيت will be rejected on the basis of its ambiguity³⁸, while the two terms *al-bayt al-ḥarâm* البيت الحرام and *al-bayt al-'atîq* البيت العتيق are less familiar in use, compared with *al-ka'bah* الكعبة. In the case of the three terms *al-ka'bah* الكعبة, *al-bayt al-ḥarâm* البيت الحرام and *al-bayt al-'atîq* البيت العتيق, the words are familiar to the user, so according to Cutter's third rule, the term *al-bayt al-ḥarâm* البيت الحرام will be the preferred one since it comes first in the alphabet.

As to quasi-synonyms, Cutter states that a distinction should be clearly drawn as to whether there is a real difference between the two terms or not. If there is a distinguishable difference, then they should be treated as two different terms (i.e. both should be provided as index terms); however, if there is not, then they should be considered true synonyms and be treated according to the above criteria of selection. This means, for instance, that if the two terms *al-khawf* الخوف and *al-khashyah* الخشية are considered synonyms, then one of them is to be selected to represent the other; if not, both are to be used as index terms. This depends on how sophisticated the retrieval system needs to be in using the terms.

In contrast to the above view, the compilers of *Urban Thesaurus* do not believe in the use of preferred synonyms in their treatment of synonyms. Any synonym may be used; all are linked together by an OR indicator. Urban's view,

³⁷ *Ibid.*

³⁸ According to al-Tha'âlibî (*op.cit.*, pp.98-100), the term *bayt* بيت as it appears in the Qur'an has nine different meanings, viz, *al-bayt* البيت (house), *al-masjid* المسجد (mosque), *safînat Nûh* سفينة نوح (Noah's ship), *al-ka'bah* الكعبة (Ka'bah), *al-khaymah* الخيمة (tent), *al-sijn* السجن (jail), *'ish al-nahl* عش النحل (bee's nest), *al-kahf* الكهف (cave), and *al-khân* الخان (shops).

in the words of the compilers, is that ". . . it would be presumptuous to suggest preferred terms where a number of disciplines and professions are using the same thesaurus, each having its own set of preferred terms for nearly identical concept."³⁹ By this treatment the compilers of Urban Thesaurus have freed themselves from the complications that results from choosing preferred terms. All terms are available and tidily linked. Applying this treatment to terms such as *al-ka'bah* الكعبة , *al-bayt* البيت , *al-bayt al-ḥarâm* البيت الحرام , and *al-bayt al-'atîq* البيت العتيق , the display of the terms will look like this:

<p><i>al-ka'bah</i> OR <i>al-bayt</i> OR <i>al-bayt al-ḥarâm</i> OR <i>al-bayt al-'atîq</i></p>	<p>الكعبة أو البيت أو البيت الحرام أو البيت العتيق</p>
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Through this presentation, the term *al-ka'bah* الكعبة will appear again under *al-bayt* البيت , *al-bayt al-ḥarâm* البيت الحرام and *al-bayt al-'atîq* البيت العتيق ; the same will be true for the other three terms as well. This treatment could also be applied to the other examples, which are provided as synonyms, such as *kibr* كبر , *kibryâ'* كبرياء and *istikbâr* استكبار . Certainly, by this treatment, the compilers of Urban Thesaurus drew no distinction between quasi-synonyms and true synonyms, since all the terms are provided in the display (i.e. the quasi-synonym terms are provided in the retrieval system).

Comparing Cutter's view with the Urban compilers' view, it may^{be} concluded that the problem of synonyms is scattered through the alphabet and hence reducing the recall efficiency is solved by Urban's treatment. This, therefore, means that Cutter's traditional treatment in selecting a preferred term is seen to be inadequate, since all the terms can be provided, linked without scattering, and displayed in the retrieval system. Moreover, the demarcation line between two terms, whether they are synonyms or not, is also solved. One great disadvantage of Urban's treatment is the frequent repetition of the terms, which increases the size of the retrieval system and demands more accuracy during the

³⁹ Rickert, J. E. Comp. (1968), *Urban Thesaurus*, Ohio: Kent State University, p.10.

compilation process. However, if the compiler follows one of these two treatments, he should consider all this in the compilation process, and state this policy as an acknowledgment in the retrieval system.

3.5. Organization Of Terms

The terms selected for headings in the controlled vocabulary must be organized in a way that is useful to both the compiler and the searcher. The function of organizing the headings is to provide the user with a simple method of searching and easy access to the system through a logical sequence. However, there are two ways of writing the heading form: single-word headings or compound headings, each of which is entitled to a specific method of organizing the terms within the retrieval system; these now will be discussed.

3.5.1. Single-word headings

The simplest and the most common sequence for arranging single-word headings is their dictionary order. In the Arabic language, letters are arranged in two orders: alphabetic and radical root. In alphabetic order, letters are arranged according to their graphical form, for instance *tâ'* ت and *thâ'* ث come after *bâ'* ب ; again *hâ'* ح and *khâ'* خ come after *jîm* ج ; similarly *dhâl* ذ come after *dâl* د etc.; only *mîm* م , *nûn* ن , *hâ'* ه , *wâw* و and *yâ'* ي , which are placed at the end, do not follow this graphical arrangement. The most common sequence, however, which is used in the most Arab countries, is as follows:

أ ب ت ث ج ح خ د ذ ر ز س ش ص ض ط ظ ع غ ف ق ك ل م ن ه و ي

A different arrangement, but keeping the same homogeneity of the letters is found in the Moroccan countries which follow another sequence as follows:⁴⁰

أ ب ت ث ج ح خ د ذ ر ز ط ظ ك ل م ن ه و ي ق س ش ه و ي

The compiler, who decides to follow either of these two sequences, should acknowledge this in the retrieval system, otherwise the user will become confused. However, within these treatments the compiler must also deal with

⁴⁰ Aman, *op.cit.*, p.278.

the sequencing of the vowel signs. Vowel signs in the Arabic language, classified as *sukûn* َ, *fathah* َ, *dammah* ُ, and *kasrah* ِ, raise another problem when two or more words share the same root, adopt the same spelling, but have different meanings (according to the vowel positions on the letters). The question therefore is: which comes first? For example, the word *hjr* هجر , without vowel signs, is open to different interpretations, such as *hujar* حُجْر (rooms), *hijr* حِجْر (barrier), *hajar* حَجْر (stone). A search through various Qur'anic dictionaries shows that the three words have been arranged as *hijr* حِجْر , *hujar* حُجْر , and *hajar* حَجْر .⁴¹; *hijr* حِجْر , *hajar* حَجْر , and *hujar* حُجْر .⁴²; and *hajar* حَجْر , *hujar* حُجْر , and *hijr* حِجْر .⁴³ Unless the compiler explains his methodological treatment for sequencing the vowel signs, these types of words could follow any arrangement. Another issue, related to the alphabetical order, is the position of *hamzah* ْ . *Hamzah* has no fixed position; it can be written alone, on *alif* ا , on *yâ'* ي , or on *wâw* و . A word like *al-r'uûf* الرؤوف (compassionate) where *hamzah* is written alone ْ , could also be written as *al-ra'ûuf* الرؤوف where *hamzah* is written on the *wâw* و . The problem facing the compiler is whether *hamzah* is a separate or a complementary letter, and what its position in the sequence of alphabets is? In other cases where *hamzah* on *alif* ا is followed by another *hamzah* on *alif* (*alif mamdûdah* اِ) should the compiler treat them as one *alif* or two. This applies equally to *shaddah* ّ which is considered a vowel sign, though it could also be treated as a doubling of letters. However, if the compiler is not aware of all these differences in the Arabic writing system, confusion in the sequence of the alphabetical order of the letters could occur, resulting in the user being unable to retrieve anything.

Treatment for the above cases have been partially covered by Arab librarians and information scientists. 'Abd al-Hâdî suggests a criterion for arranging *hamzah* and *alif*, in which he states that, in general, separated *hamzah* should

⁴¹ 'Abd al-Bâqî (1984), *op.cit.*, p.193.

⁴² al-Nadawî, *op.cit.*, pp.123-124.

⁴³ Majma' al-Lughah al-'Arabiyyah, *op.cit.*, pp.125-126.

precede the *alif* in order and wherever *hamzah* is attached to any letter it should be considered as a part of this letter; he also asserts that *alif mamdudah* should be treated as double *alif*.⁴⁴ On the other hand, al-Ashqar suggests that the vowel signs should be in this sequence: *sukûn* َ, *fathah* ِ, *kasrah* ِ, and *dammah* ُ. He justifies this sequences on the grounds that *sukûn* has the meaning of silence and should come first, then *fathah* which is phonetically lighter than *kasrah*, and similarly for *kasrah* which is phonetically lighter than *dammah*.⁴⁵ According to al-Ashqar's treatment, the three words discussed above should be arranged as *hajar* حَجْر , *hijr* حِجْر , then *hujar* حُجْر .

If the compiler intends to arrange the system according to alphabetical order and agrees to follow these guidelines, he should adopt them as rules for the user of the system, but if the compiler intends to arrange the words according to the radical roots, he must take account of the following disadvantages: first, the searcher has to make a mental effort to reduce the natural form of the word to its root. In many cases this could lead to a breakdown, if the searcher is not expert in Arabic grammar, as certain letters have to be converted to others; for instance, the user searching for a word *mâ'* ماء (water) will look under the root *m-w-h* م - و - ه , as the letter "â |." is converted to the letter "w و", and the letter " ' ء" is converted to the letter "h ه". This problem requires the compiler to list in the retrieval system all the abnormal cases of letters that have to be converted to others. Secondly, lexicons show certain disagreements in the form of reducing certain words to their original roots. For instance, the word *al-ân* الآن has been reduced by some to the root *a-w-n* ا - و - ن ⁴⁶ and by others to the root *a-y-n* ا - ي - ن ⁴⁷. The compiler has to provide the user with information about these differences and to indicate his own treatment in the system. Thirdly, in early Arab dictionaries the roots are arranged according to the

⁴⁴ 'Abd al-Hâdî, *op.cit.*, pp.138-139.

⁴⁵ al-Ashqar, Muḥammad, *op.cit.*, pp.58-75.

⁴⁶ Majma' al-Lughah al-'Arabiyyah, *op.cit.*, p.35.

⁴⁷ Ibrâhîm, *op.cit.*, p.54.

opinions of different schools⁴⁸, and the compiler has to indicate the school he follows and/or provide details of his methodological way of searching through the system. Fourthly, the form of words that have different possible derivations could be reduced incorrectly to an original root. For instance, the word *hûdan* هودًا, is reduced to the root *h-w-d* هـ - و - د in one dictionary, while the word *yahûd* يهود in the same dictionary is reduced to the root *y-h-d* ي - ه - د though both should be derived from the same root.⁴⁹ Fifthly, early dictionary compilers grouped the Arabic roots into four types: two-radical, three-radical, four-radical, and five-radical letters. Most Arabic vocabularies are based on three-radical roots.⁵⁰ Dictionary compilers have based their systems on three-radical roots leaving the two, four, and five radical roots in an undistinguishable position in the dictionaries for the searcher. The compiler should provide the user with information on the place of these roots within the system. Sixthly, the reduction of words to their roots is not valid for all words. Some words are abstracts (those which are neither derived from others nor are others derived from them). These words are, specifically, proper nouns such as *al-murjân* المرجان (corals) and names such as *Allah* الله (God), and these words should be indicated in a list to explain their position in the system, or placed in a supplementary part of the system. Seventhly, despite all these weaknesses, the use of the root arrangement still requires two alphabetic arrangements: an

⁴⁸ In an attempt to standardize the structure of the Arabic language, al-Azharî, Abû Manşûr Muḥammad (died 370 A.H./862 A.D.) in *tahdhîb al-lughah* divides the language structure according to these letters into roots which come in two, three, four, and five radicals. Following another methodology, in his *ṣiḥâḥ*, al-Jawharî, Ismâ'îl ibn Ḥammâd (died 393 A.H./1004 A.D.) who used the alphabetical order divided the roots into twenty eight sections arranged according to their final radical. With more specific division each section is divided into sub-sections in which the roots are positioned according to their first radical. Al-Jawharî's *ṣiḥâḥ* has been repositioned in terms of its root by al-Barmakî, Abû al-Ma'âfî ibn Tamîm (died around 400 A.H./992 A.D.) who based his arrangement on the first radical both in sections and sub-sections. Al-Barmakî's arrangement was adopted by al-Zamakhsharî in *asâs al-balâghah*, Ibn Manẓûr, Jamâl al-Dîn ibn Muḥammad (died 711 A.H./1311 A.D.) in *lisân al-'Arab*, and al-Fayrûzabâdî in *al-qamûs al-muḥîṭ*.

⁴⁹ 'Abd al-Bâqî (1984), *op.cit.*, p.739 & p.775.

⁵⁰ After a study of several extensive Arabic dictionaries (cf. fn 63), al-Ṭayyân and Mîr'alam reported that the percentage coverage of two, three, four, and five radical roots was 1.33, 63.43, 32.95, 2.29 respectively. See al-Ṭayyân, M. H. and Mîr'alam, Y. (1989), *qâ'idat mu'tayât lil-judhûr al-'Arabiyyah*, Second Conference on Arabic Computational Linguistics, Kuwait, pp.104-124. [Arabic text]

arrangement of the roots and the arrangement of the words that are derived from these roots. There is therefore a need to deal with the problems relating to alphabetic arrangement and the suggested solutions.

Based on the above review, it may be concluded that the alphabetical sequence of letters is much easier for the compiler to handle and much more efficient for the user. On the one hand, in using alphabetic sequences, the compiler does not need to be wary about all the complexities that result from the root sequences, on the other hand, the user will not require much expertise in Arabic grammar to reduce the words to their roots. Moreover, experience shows that the root sequence is only effective in the construction of word dictionaries rather than in a subject retrieval system⁵¹. This is due to the fact that dictionary makers aim to gather all the related words under one heading, and so the use of the radical roots is the most suitable method for such arrangement, while the subject retrieval system is mainly organized with a view to providing an easy access to the user and not to burden him with the need to have prior knowledge of the rules of Arabic grammars.

However, in adopting the alphabetic sequence, the retrieval system should primarily be based on what is familiar to the user; that is to say, it should use the alphabetic sequence which is known to the user in the relevant country (i.e. Moroccan sequences in Moroccan countries and other sequences elsewhere). If the system is for public use and there is no control over its geographical spread, then the alphabetical sequence that is used in the majority of Arab countries should be adopted, and this should be noted in the acknowledgements to inform the unfamiliar user of the differences. In dealing with vowel signs, such acknowledgement should also be made along with justification for the choice. Hitherto only al-Ashqar among the Arab librarians has justified his method of dealing with vowel signs for the purpose of the indexing. His justification is

⁵¹ 'Abd al-Hâdî, *op.cit.*, p.136.

completely valid and could be used for the sequencing of vowel signs. However, in dealing with *shaddah* ّ, there is no reason for *shaddah* to be analyzed into its original vowels, whether ّ + َ = ّ, ّ + ُ = ّ, or ّ + ِ = ّ, and the letter vowelled with *shaddah* to be treated as a double letter. *Shaddah* ّ is considered as a vowel in Arabic grammar and it should remain so, taking its position in order after *dammah*. This makes the full sequence of the vowel signs َ, ُ, ِ, ّ, ّ, ّ, ّ. Following this sequence comes *alif mamdûdah* ا which should be considered as one letter not double, and precede *alif* ا in order. For instance, Adam آدم comes before Ahmad أحمد. Finally, *hamzah* ً should be treated according to its position; separated *hamzah* ً comes before *alif mamdûdah* ا, but wherever it is attached to any letter it should be considered part of that letter and precede that letter without *hamzah* in order. For example, *hamzah* on *wâw* و should precede *wâw* و in order; *hamzah* on *alif* ا should precede *alif* ا in order; and *hamzah* on *yâ'* ي should precede *yâ'* ي in order. This is due to the fact that *hamzah* was originally considered the first in the alphabetic sequence.

3.5.2. Compound headings

Compound headings are headings which include two words or more in their formation. These headings are not necessarily to be retained in the Qur'anic text, but are needed for the compiler to place the verses under them. These headings could be devised by the compiler or borrowed from the terminology used in disciplines such as psychology, economics, physics, etc. However, these headings are based on the committee approach and not susceptible to the empirical approach. 'Abd al-Hâdî asserts that these types of headings serve to describe the complex subjects which cannot be expressed by a single-word heading. He identifies five types of these headings: (a) an adjective preceded by a noun such as *al-taghayyur al-ijtimâ'î* التغير الإجتماعى (social change), (b) a noun preceded by another noun such as *'ilm al-ijtimâ'* علم الإجتماع (social

science), (c) a noun connected with another by a preposition such as *al-mar'ah fi al-Qur'an* المرأة في القرآن (woman in the Qur'an), (d) a noun connected with another by a conjunction such as *al-'âdât wa al-taqâlîd* العادات والتقاليد (customs and traditions), and (e) a phrase or sentence such as *khazn wa istrjâ' al-ma'lûmât* خزن واسترجاع المعلومات (information storage and retrieval).⁵² 'Abd al-Hâdî, however, recognizes a number of possible ways in which these headings could be treated. In the case of (a) and (c), he states that it should be filed as it is read, and there is no need to invert the heading by introducing the significant term first since this is the natural form of the Arabic sentence.⁵³ In the case of (b) and (e), 'Abd al-Hâdî states that the norm is to file it as it is read, while in cases such as social science, the inversion of the significant word is applicable since the significant term is *al-ijtimâ'î* الإجتماعي, and so is better treated as *al-ijtimâ'î - 'ilm* الإجتماع - علم.⁵⁴ Finally, 'Abd al-Hâdî argues that in case (d), headings should be treated according to their most common and familiar form to people who consult the work (i.e. *al-'âdât wa al-taqâlîd* العادات والتقاليد not *al-taqâlîd wa al-'âdât* التقاليد والعادات).⁵⁵

However, the arrangement of letters within a compound heading make the root sequencing inadequate. This is because the reduction of the word to its root reduces it to a single word, not a compound one. On the other hand, the use of an alphabetic arrangement with the compound heading raises a new issue for the compiler in addition to those mentioned earlier; that is, whether to arrange the headings in a "word-by-word" or "letter-by-letter" sequencing. In a word-by-word sequencing, words indicated in the heading are distinguished as individual single words, while in a letter-by-letter sequencing, all the words are brought together (i.e. the spaces between the words are ignored) and the whole heading is treated as a single word. For example, two compound headings, viz,

⁵² 'Abd al-Hadî, *op.cit.*, p.83.

⁵³ *Ibid.*, pp.83-87.

⁵⁴ *Ibid.*, pp.84-92.

⁵⁵ *Ibid.*, p.86.

um Mûsâ أم موسى and *imra'at Mûsâ* امرأة موسى , arranged word-by-word will be displayed as:

<i>um Mûsâ</i>	أم موسى
<i>imra'at Mûsâ</i>	إمرأة موسى

This is because the word *um* أم in Arabic has to come before the word *imra'at* امرأة . On the other hand, if the two words are arranged letter-by-letter, the two headings will appear as:

<i>imra'at Mûsâ</i>	إمرأة موسى
<i>um Mûsâ</i>	أم موسى

This is because in removing the spaces between the words, the letter *ر* has to come before the letter *م* . In arranging the letters within the headings , Aman states that the definite article *al-* ال (the) should be neglected in the letter order. He also adds that all prepositions and conjunction articles should be considered in alphabetical order within the heading⁵⁶. Indeed, in the search for the preferred form of the compound heading, there is no precise agreement as to which form of heading is acceptable; this depends on the subject under discussion, so only an estimation as to the preferred form can be given. Applying Aman's remarks⁵⁷ to this work, it may be concluded that the familiarity to the user of the two-word headings is greater than the other forms, since both lists are constructed on a practical basis for the purpose of library use. Regarding Qur'anic statements, a great many of the verses convey two or more concepts such as *'iddat al-mar'ah al-hâmil* عدة المرأة الحامل (waiting period of a pregnant woman). It is, however, the two-word headings which are

⁵⁶ Aman, *op.cit.*, pp.278-279.

⁵⁷ In his survey to the Egyptian Publication Bulletin (EPB), Aman found that the headings which employ the conjunction *wa* (و) comprise 33 percent of the three-word headings, 46 percent of four-word headings, and 7 percent of two-word headings. He also found that among the number of two-word headings which represent 30 percent of the total headings in the list, nouns plus adjectives total 55 percent, and nouns plus nouns total 35 percent. On the other hand, following his survey of the Jordanian subject headings list, Aman asserts that of the 39 percent of two-word headings found in the list 75 percent combine a noun plus adjective, while the conjunction *wa* (و) in the list is used in about 17 percent. Aman remarks on the basis of these percentages that a common characteristic of the two lists is the large number of two-word headings (*Ibid.*, pp.152-154).

less specific and more general, for example, *'iddat al-ḥâmil* **عدة الحامل** (waiting period of the pregnant), while the use of the conjunction *wa* **و** could provide a regular pattern over a number of verses; for example, *al-'iddah wa al-ḥaml* **العدة والحمل** (waiting period and pregnancy). The latter is preferable because of its familiarity to the users, its simplicity of structure, and its ability to lead to homogeneity across the work. Moreover, this type of heading could be given as *al-'iddah wa al-ḥaml* **العدة والحمل**, if the intention is to specify the concept *al-'iddah* **العدة**, or given as *al-ḥaml wa al-'iddah* **الحمل والعدة**, if the intention is to specify the concept *al-ḥaml* **الحمل**. As to filing in word-by-word or letter-by-letter arrangement, the latter results in scattering the subjects through the alphabetical list, since irrelevant terms may interfere if the first word in the heading is provided with a suffix. On the other hand, usage of two-word headings combined with *wa* **و** is consistent with the word-by-word arrangement. In that respect, the definite article *al-* **ال** should not be taken into account, unless it is a part of a name, but the conjunction *wa* **و** should be considered. For the compiler of the retrieval system, whatever view is taken, acknowledgement should be given in the system by means of an example, to clarify for the user the methodology that has been followed.

3.6. Structure And Display Of Terms

The problems that have been discussed so far, show how headings may be selected, clarified, and organized. Consideration has not yet been given to the question of displaying the headings and showing the relationship among them. This, however, requires that the related subjects within the Qur'anic verses should be listed and organized in a manner that best expresses the needs of the user. In the initial stage of designing the Qur'anic retrieval system, it is impractical to collate all these relations since this process is a part of the construction of the retrieval system itself. Moreover, the relationships among the subjects in the Qur'an are conceptual in many cases and could reveal as many relations as the user desires. Therefore, a practical step is to establish

broad categories of common semantic relations that can serve as models for the relations that will be produced in the practical stage, and show how such relations can be linked by the compiler.

As a start, one of the distinctive broad categories of semantic relationships which can be found in the Qur'an, is the relationship between superordinate terms, which represent a whole class, and the subordinate terms, which represent a part of that class. These types of relations describe, for instance, the organs of the body such as *al-ra's* الرأس (head) ^{and} *al-sha'r* الشعر (hair); places such as *Makkah* مكة (Mecca) and *al-Ka'bah* الكعبة (Ka'bah); activities such as *al-ḥajj* الحج (pilgrimage) and *al-ṭawâf* الطواف (circumambulation); and objects such as *al-lât* اللات (name of idol) and *al-aṣnâm* الأصنام (idols).

Another broad category of semantics with a similar relationship found in the Qur'an is that which describes the relation between families and members of these families. For instance, among the angels race *al-malâ'ikah* الملائكة (angels) and *ḥamalat al-'arsh* حملة العرش (Throne holders); among al-jinn race *jinn* جن and *'ifrît* عفريت ; among the human race *al-insân* الإنسان (human being) and *al-rajul* الرجل (man); in the animal kingdom *al-ḥayawân* الحيوان (animals) and *al-an'âm* الأنعام (cattle); and in the plant kingdom *al-najm* النجم (shrub) and *al-nabât* النبات (plant).

Finally, there is the associated category which describes relations which are neither whole-part nor family-member, but which are conceptually related. For instance; concepts related as to their origin such as *al-mâ'* الماء (water) and *al-maṭâr* المطر (rain); concepts related by casual dependence such as *al-ṭalâq* الطلاق (divorce) and *al-'iddah* العدة (waiting period); an action and its counter-agent such as *al-zinâ* الزنا (adultery) and *al-jald* الجلد (flogging); and a concept and its opposite such as *al-ḥalâl* الحلال (lawful) and *al-ḥarâm* الحرام (forbidden), etc.

All of the above categories, however, reveal different types of relationships and the compiler could place the verse which indicates a specific subject either under its general heading or under the heading which specifically expresses it, or place the verse under two associated headings which are conceptually linked. This process calls for great knowledge of the terms, their meanings and their relationships and the problems of term selection, and their organization and display. In many cases a dramatic increase in the number of terms can cause confusion to the reader if the display is not described accurately. Despite these difficulties, there is a great tendency among the thesauri compilers to relate these concepts and to provide them for the user. Their approaches take different paths in displaying and in relating the terms, but most of the thesauri compilers nowadays offer different ways of bringing terms together under the conventional alphabetical display so as to avoid the deficiencies that may arise from some of these methods. The following are examples of the various displays commonly used in information retrieval. The advantages and disadvantages are assessed and tested in terms of their usefulness to the Arabic language and Qur'anic terminology.

Of course, the most acceptable display to start with is the alphabetical display, where terms are arranged in a dictionary order. This conventional form of alphabetical display was established in 1967 on the publication of *Thesaurus of Engineering and Scientific Terms* (TEST).⁵⁸ In TEST, (see Figure 3-1), looking under the term **Abortion**, the user will be provided with two other terms which express a superordinate term to **Abortion**, namely "Pregnancy complications". The user will also be provided with a subordinate term expressed by "Septic abortion", and also the user will find all the related terms in this area (i.e. the area which the thesaurus of TEST is serving), which are

⁵⁸ Office of Naval Research, Project LEX. (1967), *Thesaurus of Engineering and Scientific Terms* (1967), New York.

Irregularities
*Use of a more specific term is
 recommended: consult the terms
 listed below*

Congenital abnormalities
 Gravity anomalies
 Growth anomalies
 Magnetic abnormalities
 Visual defects

Abnormal psychology 0510

BT Psychology

RT Adjustment (psychology)

Anxiety

Behavior therapy

Clinical psychology

Criminal psychology

Diagnosis

Experimental psychology

Guilt

Hate

Hypnosis

Intelligence tests

Military psychology

- Nervous system disorders

Neurology

Physiological psychology

Projective tests

Psychiatric tests

Psychiatry

Psychopathology

- Psychoses

- Social psychology

Stress (psychology)

- Therapy

Abnormal reflexes 0510 0616

BT Reflexes

ABO incompatibility 0605 0616

BT Blood diseases

Blood group disorders

RT Rh incompatibility

A bombs

USE Fission weapons

Abort

USE Failure

Abortion 0605

BT Pregnancy complications

NT Septic abortion

RT Brucella abortus

Brucella suis

- Endocrine diseases

Abrasion 1113

RT Abrasive blasting

Abrasives

Chipping

- Cleaning

Figure 3-1: an alphabetic display specimen from TEST.

listed alphabetically as "Brucella abortus", "Brucella suis" and "Endocrine diseases". The thesaurus indicates these relations by using special abbreviations given as prefixes to the terms, viz, NT (Narrower term), BT (Broader term), and RT (Related terms). BT and NT are two designators which describe the hierarchical relationship between super and subordinate terms, while RT is used to link together headings that are conceptually related to the term Abortion. These conventions are followed by most of the thesauri,⁵⁹ and have also been adopted in the establishment of standards⁶⁰. TEST also provides a cross-reference among synonyms, through the employment of USE designator. In Figure 3-1, the term "Abort" is not preferred by TEST compilers; instead they offer the user the term Failure. The user, however, should be directed by this USE designator to the term Failure under its alphabetical order in the display. The reciprocal is also provided by a UF designator to reverse the function.

Since the conventional alphabetical thesauri provide one hierarchical level between broad and narrower headings, some compilers, for example, the compilers of *Medical Subject Headings list* (MeSH) (see Figure 3-2)⁶¹, give superordinate and subordinate terms at more than one level in the main alphabetic display. For instance, the MeSH compilers (Figure 3-2) indicate that the term EXTREMITIES is the significant heading followed by two terms at the first hierarchical level: ARM and LEG. Under the ARM heading five terms are given presenting a second hierarchical level: ELBOW, FOREARM, HAND, SHOULDER, and WRIST. Also under the heading HAND, another hierarchical level follows, that is: FINGERS, and under the FINGERS heading another hierarchical level follows, that is: THUMB. The significant advantage of the hierarchical display is that it provides the user with a high degree of specificity for the headings, with no limitation to

⁵⁹ Some others prefer the use of other conventions, See for example, American Institute of Chemical Engineers (1961), *Chemical Engineering Thesaurus*, New York.

⁶⁰ American National Standards Institute (1980), *ANSI Z39.19 Guidelines for Thesaurus Structure, Construction and Use*, New York.

⁶¹ National Library of Medicine (1971), *Medical Subject Headings List*, Vol.12.

BODY REGIONS (NON MESH)	A1
ABDOMEN	A1.47
INGUINAL CANAL	A1.47.365
GROIN	A1.47.412
PERITONEUM	A1.47.596
MESENTERY	A1.47.596.225
MESOCOLON	A1.47.596.451.535
OMENTUM	A1.47.596.573
PERITONEAL CAVITY	A1.47.681
RETROPERITONEAL SPACE	A1.47.849
UMBILICUS	A1.133
AXILLA	A1.176
BACK	A1.176.519
LUMBOSACRAL REGION	A1.176.780
SACROCOCCYGEAL REGION	A1.236
BREAST	A1.236.500
NIPPLES	A1.258
BUTTOCKS	A1.378
EXTREMITIES	A1.378
ARM	A1.378.209
ELBOW	A1.378.209.235
FOREARM	A1.378.209.350
HAND	A1.378.209.455
FINGERS	A1.378.209.455.430
THUMB	A1.378.209.455.430.705
SHOULDER	A1.378.209.749
WRIST	A1.378.209.906
LEG	A1.378.592
ANKLE	A1.378.592.116
FOOT	A1.378.592.350
HEEL	A1.378.592.350.377
TOES	A1.378.592.350.792
HALLUX	A1.378.592.350.792.456
HIP	A1.378.592.467
KNEE	A1.378.592.586
THIGH	A1.378.592.867
HEAD	A1.456
EAR	A1.456.313
FACE	A1.456.505
CHEEK	A1.456.505.173
CHIN	A1.456.505.259
EYE	A1.456.505.420
EYEBROWS	A1.456.505.420.338
EYELIDS	A1.456.505.420.504
EYELASHES	A1.456.505.420.504.420
FOREHEAD	A1.456.505.580
MOUTH	A1.456.505.631
LIP	A1.456.505.631.515
NOSE	A1.456.505.733
NECK	A1.598
PELVIS	A1.673

Figure 3-2: a hierarchical display specimen from MeSH.

the number of hierarchical levels. Also the hierarchical display has no BT or NT indicators, which means that headings which are not given class membership assignments do not appear in the display; only those appear which represent heads of families. One great advantage of this display is that the hierarchical levels can be displayed even within the alphabetic display, though some thesauri compilers do not agree on these combinations and tend to provide a graphical section complementary to the alphabetical one. For instance, al-Yâsîn *et al*⁶², who use a tree structure display, present the broadest headings at the head of the display and the narrower headings are printed in subordinate positions, the relationship between them being indicated by vertical connecting lines, while the horizontal lines show those headings which are at the same hierarchical level. For instance, in figure 3-3 the broadest heading is *al-malâ'ikah* الملائكة (angels) while the narrower headings appear in subordinate positions which are divided into five headings marked as ا , ب , ج , and د . This is essentially a replacement for the hierarchical relationships between terms. The advantage of this display is said by Rolling to be that every concept is defined by a spot in the two-dimensional plane and is represented by one single term. The problems relating to synonyms are avoided. Ambiguity which results from homographs is avoided by glancing in the graph to the other terms in the subject. Especially helpful is the fact that the graphic display is fully used without the aid of an alphabetical list or complicated scope notes and cross-references.⁶³ However, a great disadvantage of the graphical display is that it needs a large amount of space for representation, which hardly makes the thesaurus handy for the user. This disadvantage could be disregarded or dealt with depending on the actual use of the thesaurus.

⁶² al-Yâsîn, Jâsîm ibn Muḥammad, al-Baṣârah, Nabîl ibn Manṣûr and al-Faddâgh, Maḥmûd ibn 'Abd al-'Azîz (n.d.), *al-jadâwil al-jâmi'ah fî al-'ulûm al-nâfi'ah*, Kuwait. [Arabic text]

⁶³ Rolling, L. (1965), *The Role of Graphic Display of Concept Relationships in Indexing and Retrieval Vocabularies*, Brussels.

اللائكة

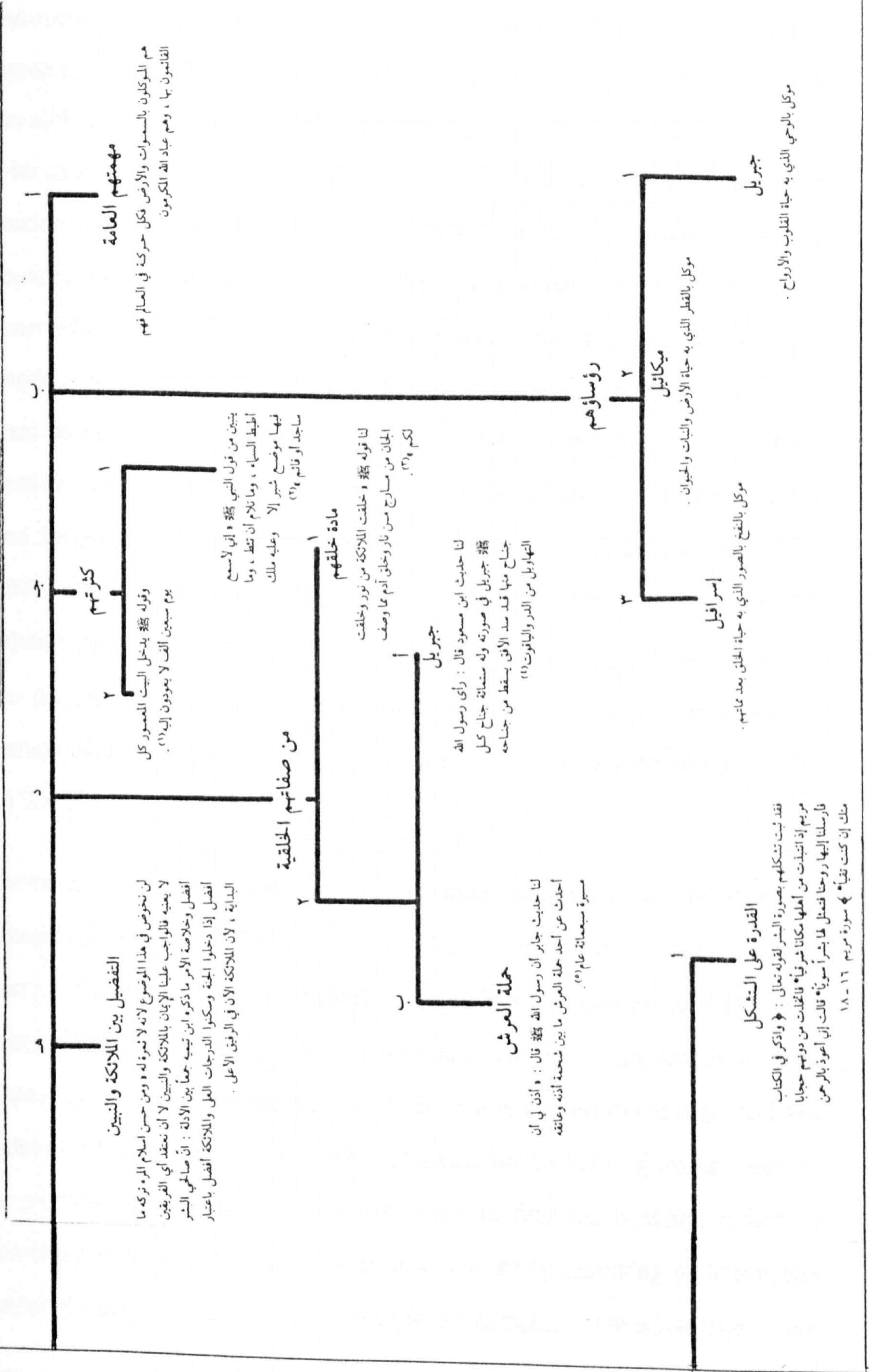


Figure 3-3: a tree structure display specimen from *al-jadâwil al-jâmi`ah fi al-`ulûm al-nâfi`ah* .

A display which has been structured to reduce the load of the related headings on alphabetical sequences is the facet display. Facet display, such as that of *Information Retrieval Thesaurus of Education Terms* (IRTET)⁶⁴, is used to group related headings in a facet section separate from, but complementary to, the alphabetic section. The alphabetic section lists headings in dictionary order, with an abbreviation RT to direct the user from the alphabetic section to the facet section via a serial number. Under the corresponding serial number in the facet section, the user will find all the related terms sublisted in a subfacet based on inner relationship. Within the subfacet, terms are grouped again according to another closer inner relationship. If the user, for instance, is searching for the term SOCIAL CONSCIOUSNESS (see Figure 3-4), he first refers to the alphabetic section. Under the term SOCIAL CONSCIOUSNESS, the user notices the indicator RT and the accompanied serial number 7007. Referring to the facet section, under 7007, all related terms are listed within groups, indicating their conceptual relationships, including the term SOCIAL CONSCIOUSNESS itself. By this treatment the compiler of IRTET reduces the load and the repetition in the alphabetic section; that is, under each term all the related terms within these groups have to be listed.

However, to achieve further reduction, some compilers, for instance, the compiler of the *Thesaurus of ERIC Descriptors*, replace the alphabetic section completely with another type display, viz, Key-Word-In-Context (KWIC). The latter is based on the alphabetic arrangement of the significant headings which appear in the middle, while the rest of the text is shifted to the right and left sides (see Figure 3-5). The user who is looking for the heading WORKING WOMEN, is provided in this display with two ways to find the heading: either by searching alphabetically under the term WOMEN, or by searching alphabetically under the term WORKING. In the words of the compilers, the advantage of this

⁶⁴ Barhydt, G. C., Schmidt, C. T. and Chang, K. T. (1968), *Information Retrieval Thesaurus of Education Terms*, Cleveland, Ohio: Case Western Reserve University.

SOCIAL ABILITY RT 6001 INTERPERSONAL RELATIONS SOCIABILITY SOCAIL APITITUDE SOCAIL INTERACTION	FACET 7 SUBFACET 7007 ATTENTION AWARENESS CONCENTRATION CONSCIOUSNESS SOCAIL CONSCIOUSNESS
SOCIAL ACCEPTABILITY RT 12001 ANTISOCIAL BEHAVIOR SOCIAL INTERACTION@ SOCIAL PRESSURES@	ALERTNESS ORINATION READINESS READING READNESS SET
SOCAIL ADAPTION USE SOCIAL ADJUSTMENT	CONFUSION DISORIENTATION INDECISION
SOCIAL ADJUSTMENT UF MALADJUSTMENT SOCIAL ADAPTION RT 2023 SOCIABILITY SOCIAL ACCEPTABILITY SOCIAL APTITUDE	BACKGROUND EXPERIENCE FAMILARITY VICARIOUS EXPERIENCE
SOCIAL APTITUDE RT 6002 INTERPERSONAL RELATIONS@ PERSONALITY SOCIABILITY@ SOCIAL INTERACTION@	FACET 7 SUB-FACET 7008 AFFECT TOLERANCE EMOTIONAL MATURITY EMOTINAL STABILITY MENTAL CONTROL
SOCIAL BEHAVIOR USE SOCIAL INTERACTION	EMPTIONAL DISTURBANCE MENTAL ILLNESS PERSONALITY DISORDER PERSONALITY PATTERN DISTURBANCE PERSONALITY TRAIT DISTURBANCE SOCIOPATHIC PERSONALITY DISORDER
SOCIAL CHANGE SN SOCIAL CONDITIONS RT 2021 CULTURAL VALUES@ SOCIAL CLIMATE@ SOCIAL TREND@ URBANIZATION@	AFFECTIVE PSYCHOSIS MANIC DEPRESSIVE PSYCHOSIS MENTAL DISORDER NEUROSIS PARANOIA
SOCIAL CLASS SN * RT 12001	PSYCHOSIS PSYCHOTIC DEPRESSIVE REACTION SCHIZOPHRENIA
SOCIAL CLIMATE SN * RT 12003 SOCIAL CHANGE	FACET 8 SUB-FACET 8001
SOCIAL CONFLECT USE CONFLICT	ADDICTION CHRONIC ILLNESS DISABILITY DISEASE
SOCIAL CONSCIOUSNESS RT 7007 SOCIALIZATION@	
SOCIAL DEVELOPMENT	

Figure 3-4: an alphabetic - facet display specimen from IRTET.

CITY	WIDE PROGRAMS
	WILDLIFE MANAGEMENT
	WINDOWLESS ROOMS
	WITHDRAWAL
	WITHDRAWAL TENDENCIES (PSYCHOLOGY)
	WOLOF
	WOMEN PROFESSORS
	WOMEN TEACHERS
WORKING	WOMEN
	WOMENS EDUCATION
	WOODWORKING
	WORD FREQUENCY
	WORD LISTS
	WORD RECOGNITION
	WORD STUDY SKILLS
FUNCTION	WORDS
	WORK ATTITUDES
	WORK ENVIRONMENT
	WORK EXPERIENCE
	WORK EXPERIENCE PROGRAMS
	WORK LIFE EXPECTANCY
SHEET METAL	WORK
	WORK SIMPLIFICATION
SOCIAL	WORK
STUDENT PERSONNEL	WORK
	WORK STUDY PROGRAMS
VERTICAL	WORK SURFACES
	WORKBOOKS
MIGRANT	WORKER PROJECT
NURSERY	WORKERS (HORTICULTURE)
CHILD CARE	WORKERS
CLERICAL	WORKERS
ENTRY	WORKERS
FOOD SERVICE	WORKERS
FOREIGN	WORKERS
INTERSTATE	WORKERS
MIGRANT	WORKERS
SALES	WORKERS
SCHOOL SOCIAL	WORKERS
SEMISKILLED	WORKERS
SERVICE	WORKERS
SHEET METAL	WORKERS
SKILLED	WORKERS
SOCIAL	WORKERS
UNSKILLED	WORKERS
	WORKING HOURS
METAL	WORKING OCCUPATIONS
	WORKING PARENTS
	WORKING WOMEN
	WORKINGMANS COMPENSATION
	WORKSHEETS
	WORKSHOPS
DRAMA	WORKSHOPS
PARENT	WORKSHOPS
PRESCHOOL	WORKSHOPS
SHELTERED	WORKSHOPS

Figure 3-5: a KWIC display specimen from ERIC Thesaurus.

display is that "the 'natural' features of language are exploited; every word of every descriptor is alphabetized separately; and the full descriptor appears in context each time a word is entered in its alphabetical position."⁶⁵ By this treatment, the KWIC display solves the problem of inverting the significant word; all the headings are entered in their natural form. Moreover, this display uses the word-by-word sequence, and makes no room for the letter-by-letter sequences. Despite these advantages, KWIC display cannot work effectively with Arabic headings. This is due to the existence of conjunctions, prepositions and definite articles, which are considered to be parts of the word and which interrupt the alphabetical order. For instance, searching for the word *Allah* الله (God), the user will be faced with words such as *bi-Allah* بالله , *ta-Allah* تالله , *wa-Allah* والله , *fa-Allah* فالله , where the prepositions *b* ب , *t* ت , *w* و and *f* ف are connected to the word *Allah* الله . Unless the compiler ignores the prepositions in the alphabetical order, the user will fail to reach his aim. Another similar approach to KWIC, which solves the problem of conjunctions and prepositions in Arabic headings, is the Key-Word-Out-of-Context (KWOC) display. As used in *al-mu'jam al-mufahras li-alfâz al-Qur'ân al-karîm* (see Figure 3-6), each significant term is placed at the top of the heading, so that removing the affixes does not interrupt the natural form of the heading, except for the existence of the definite article, where there is a need to consider whether it is a part of the word or not. For instance, the word *zulzilât* زُلْزِلَاتٌ (has earthquaked) has been abstracted from the complete verse in the Qur'an and shifted to the right⁶⁶ as a significant term, where the rest of the verse retains its natural form. Again, the same verse appears under the significance word *zilzâlahâ* زِلْزَالَهَا (its earthquake), where the word has been abstracted from the verse and placed on the right as a significant term. Similarly this verse will appear elsewhere in the display under the word *al-ard* الأرض (the earth),

⁶⁵ U.S. Office of Education (1969), *Thesaurus of ERIC Descriptors*, New York, p.19.

⁶⁶ The display uses the placement of the word on the right instead of on the left, because of the Arabic writing system, which starts from right to left.

الزكاة - فزلها	(زك و - أرض)	الأرض
الزكاة: وأقيموا الصلاة وآتوا الزكاة وأطيعوا الرسول ٥٦ م النور ٢٤	الزكاة: وأقيموا الصلاة وآتوا الزكاة وأطيعوا الرسول ٥٦ م النور ٢٤	الزكاة: وأقيموا الصلاة وآتوا الزكاة وأطيعوا الرسول ٥٦ م النور ٢٤
الذين يقيمون الصلاة ويؤتون الزكاة وهم بالآخرة هم يوقنون ٣ ك النحل ٢٧	الذين يقيمون الصلاة ويؤتون الزكاة وهم بالآخرة هم يوقنون ٣ ك النحل ٢٧	الذين يقيمون الصلاة ويؤتون الزكاة وهم بالآخرة هم يوقنون ٣ ك النحل ٢٧
وما آتيتهم من زكاة تريدون وجه الله فأولئك هم المضعفون ٣٩ ك الروم ٢٠	وما آتيتهم من زكاة تريدون وجه الله فأولئك هم المضعفون ٣٩ ك الروم ٢٠	وما آتيتهم من زكاة تريدون وجه الله فأولئك هم المضعفون ٣٩ ك الروم ٢٠
الذين يقيمون الصلاة ويؤتون الزكاة وهم بالآخرة هم يوقنون ٤ ك لقمان ٣١	الذين يقيمون الصلاة ويؤتون الزكاة وهم بالآخرة هم يوقنون ٤ ك لقمان ٣١	الذين يقيمون الصلاة ويؤتون الزكاة وهم بالآخرة هم يوقنون ٤ ك لقمان ٣١
وأقن الصلاة وآتوا الزكاة وأطمن الله ورسوله ٣٣ م الأحزاب ٣٣	وأقن الصلاة وآتوا الزكاة وأطمن الله ورسوله ٣٣ م الأحزاب ٣٣	وأقن الصلاة وآتوا الزكاة وأطمن الله ورسوله ٣٣ م الأحزاب ٣٣
الذين لا يؤتون الزكاة وهم بالآخرة هم كافرين ٧ ك فصلت ٤١	الذين لا يؤتون الزكاة وهم بالآخرة هم كافرين ٧ ك فصلت ٤١	الذين لا يؤتون الزكاة وهم بالآخرة هم كافرين ٧ ك فصلت ٤١
فإذ لم يفعلوا رتاب الله عليكم فأقيموا الصلاة وآتوا الزكاة ١٣ م المجادلة ٥٨	فإذ لم يفعلوا رتاب الله عليكم فأقيموا الصلاة وآتوا الزكاة ١٣ م المجادلة ٥٨	فإذ لم يفعلوا رتاب الله عليكم فأقيموا الصلاة وآتوا الزكاة ١٣ م المجادلة ٥٨
وأقيموا الصلاة وآتوا الزكاة وأقرضوا الله قرضاً حسناً ٢٠ م المزل ٧٣	وأقيموا الصلاة وآتوا الزكاة وأقرضوا الله قرضاً حسناً ٢٠ م المزل ٧٣	وأقيموا الصلاة وآتوا الزكاة وأقرضوا الله قرضاً حسناً ٢٠ م المزل ٧٣
ويقيموا الصلاة ويؤتوا الزكاة وذلك دين القيمة ٥ م البينة ٩٨	ويقيموا الصلاة ويؤتوا الزكاة وذلك دين القيمة ٥ م البينة ٩٨	ويقيموا الصلاة ويؤتوا الزكاة وذلك دين القيمة ٥ م البينة ٩٨
+	+	+
زُلزِلَتْ: إذا زلزلت الأرض زلزالها ١ م الزلزلة ٩٩	زُلزِلَتْ: إذا زلزلت الأرض زلزالها ١ م الزلزلة ٩٩	زُلزِلَتْ: إذا زلزلت الأرض زلزالها ١ م الزلزلة ٩٩
زُلزِلُوا: استهم البأساء والضراء وزلزلوا ٢١٤ م البقرة ٢	زُلزِلُوا: استهم البأساء والضراء وزلزلوا ٢١٤ م البقرة ٢	زُلزِلُوا: استهم البأساء والضراء وزلزلوا ٢١٤ م البقرة ٢
(٢) هنالك آتبل المؤمنون وزلزلوا ١١ م الأحزاب ٣٣	(٢) هنالك آتبل المؤمنون وزلزلوا ١١ م الأحزاب ٣٣	(٢) هنالك آتبل المؤمنون وزلزلوا ١١ م الأحزاب ٣٣
زِلْزَالًا: زلزالاً شديداً ١١ م ٢٣	زِلْزَالًا: زلزالاً شديداً ١١ م ٢٣	زِلْزَالًا: زلزالاً شديداً ١١ م ٢٣
زُلْزِلَ: إذا زلزلت الأرض زلزالها ١ م الزلزلة ٩٩	زُلْزِلَ: إذا زلزلت الأرض زلزالها ١ م الزلزلة ٩٩	زُلْزِلَ: إذا زلزلت الأرض زلزالها ١ م الزلزلة ٩٩
زَلْزَلَةٌ: بأبها الناس آمنوا ربكم إن زلزلة الساعة شيء عظيم ١ م الحج ٢٢	زَلْزَلَةٌ: بأبها الناس آمنوا ربكم إن زلزلة الساعة شيء عظيم ١ م الحج ٢٢	زَلْزَلَةٌ: بأبها الناس آمنوا ربكم إن زلزلة الساعة شيء عظيم ١ م الحج ٢٢
+	+	+
أُزْلِفْنَا: وأزلفنا ثم الآخريين ٦٤ ك الشعراء ٢٦	أُزْلِفْنَا: وأزلفنا ثم الآخريين ٦٤ ك الشعراء ٢٦	أُزْلِفْنَا: وأزلفنا ثم الآخريين ٦٤ ك الشعراء ٢٦
أُزْلِفَتْ: وأزلفت الجنة للذين آمنوا ٩٠ م ٢٦	أُزْلِفَتْ: وأزلفت الجنة للذين آمنوا ٩٠ م ٢٦	أُزْلِفَتْ: وأزلفت الجنة للذين آمنوا ٩٠ م ٢٦
(٣) وأزلفت الجنة للذين آمنوا غير بعيد ٣١ م ٥٠	(٣) وأزلفت الجنة للذين آمنوا غير بعيد ٣١ م ٥٠	(٣) وأزلفت الجنة للذين آمنوا غير بعيد ٣١ م ٥٠
وإذا الجنة أزلفت علت نفس ما أحضرت ١٣ ك التكويد ٨١	وإذا الجنة أزلفت علت نفس ما أحضرت ١٣ ك التكويد ٨١	وإذا الجنة أزلفت علت نفس ما أحضرت ١٣ ك التكويد ٨١
زُلْفَةً: فلما رآه زلفة سينت وجهه الذين كفروا ٢٧ م الملك ٦٧	زُلْفَةً: فلما رآه زلفة سينت وجهه الذين كفروا ٢٧ م الملك ٦٧	زُلْفَةً: فلما رآه زلفة سينت وجهه الذين كفروا ٢٧ م الملك ٦٧
زُلْفًا: وأتم الصلاة طرفي النهار وزلفاً من الليل ١١٤ م هود ١١	زُلْفًا: وأتم الصلاة طرفي النهار وزلفاً من الليل ١١٤ م هود ١١	زُلْفًا: وأتم الصلاة طرفي النهار وزلفاً من الليل ١١٤ م هود ١١
زُلْفًا: ولا أولادكم بالتي تقرّبكم عندنا زلفى ٣٧ م ص ٣٤	زُلْفًا: ولا أولادكم بالتي تقرّبكم عندنا زلفى ٣٧ م ص ٣٤	زُلْفًا: ولا أولادكم بالتي تقرّبكم عندنا زلفى ٣٧ م ص ٣٤
(٤) فنفرنا له ذلك وإن له عندنا زلفى وحسن مآب ٢٥ م ص ٣٨	(٤) فنفرنا له ذلك وإن له عندنا زلفى وحسن مآب ٢٥ م ص ٣٨	(٤) فنفرنا له ذلك وإن له عندنا زلفى وحسن مآب ٢٥ م ص ٣٨
وإن له عندنا زلفى وحسن مآب ٤٠ م ٢٨	وإن له عندنا زلفى وحسن مآب ٤٠ م ٢٨	وإن له عندنا زلفى وحسن مآب ٤٠ م ٢٨
مانعهم إلا ليقربونا إلى الله زلفى ٣ م الزمر ٢٩	مانعهم إلا ليقربونا إلى الله زلفى ٣ م الزمر ٢٩	مانعهم إلا ليقربونا إلى الله زلفى ٣ م الزمر ٢٩
+	+	+
لِيُزْلِقُونَك: وإن يكاد الذين كفروا ليزلقونك بأبصارهم	لِيُزْلِقُونَك: وإن يكاد الذين كفروا ليزلقونك بأبصارهم	لِيُزْلِقُونَك: وإن يكاد الذين كفروا ليزلقونك بأبصارهم
لما سمعوا الذكر ٥١ م القلم ٦٨	لما سمعوا الذكر ٥١ م القلم ٦٨	لما سمعوا الذكر ٥١ م القلم ٦٨
زُلْفًا: ويرسل عليها حساباً من السماء فتصبح صعيداً زلقاً ٤٠ م الكهف ١٨	زُلْفًا: ويرسل عليها حساباً من السماء فتصبح صعيداً زلقاً ٤٠ م الكهف ١٨	زُلْفًا: ويرسل عليها حساباً من السماء فتصبح صعيداً زلقاً ٤٠ م الكهف ١٨
+	+	+
زَلَّيْتُمْ: فإن زلتم من بعد ما جاءكم اليات فاعلموا أن الله	زَلَّيْتُمْ: فإن زلتم من بعد ما جاءكم اليات فاعلموا أن الله	زَلَّيْتُمْ: فإن زلتم من بعد ما جاءكم اليات فاعلموا أن الله
عزيز حكيم ٢٠٩ م البقرة ٢	عزيز حكيم ٢٠٩ م البقرة ٢	عزيز حكيم ٢٠٩ م البقرة ٢
قَرَل: ولا تتخذوا أيمانكم دخلاً بينكم فتل قدم بعد ثبوتها ٩٤ م النحل ١٦	قَرَل: ولا تتخذوا أيمانكم دخلاً بينكم فتل قدم بعد ثبوتها ٩٤ م النحل ١٦	قَرَل: ولا تتخذوا أيمانكم دخلاً بينكم فتل قدم بعد ثبوتها ٩٤ م النحل ١٦
فأزلفها: فأزلفها الشيطان عنها فأخرجها مما كان فيه ٣٦ م البقرة ٢	فأزلفها: فأزلفها الشيطان عنها فأخرجها مما كان فيه ٣٦ م البقرة ٢	فأزلفها: فأزلفها الشيطان عنها فأخرجها مما كان فيه ٣٦ م البقرة ٢
الأرض: خالدين فيها ما دامت السموات والأرض إلا ما شاء ١٠٧ م هود ١١	الأرض: خالدين فيها ما دامت السموات والأرض إلا ما شاء ١٠٧ م هود ١١	الأرض: خالدين فيها ما دامت السموات والأرض إلا ما شاء ١٠٧ م هود ١١
فمن الجنة خالدين فيها ما دامت السموات والأرض ١٠٨ م ١١	فمن الجنة خالدين فيها ما دامت السموات والأرض ١٠٨ م ١١	فمن الجنة خالدين فيها ما دامت السموات والأرض ١٠٨ م ١١
ولو أن قرآنا سيرت به الجبال أرطفت به الأرض ٣١ م الرعد ١٣	ولو أن قرآنا سيرت به الجبال أرطفت به الأرض ٣١ م الرعد ١٣	ولو أن قرآنا سيرت به الجبال أرطفت به الأرض ٣١ م الرعد ١٣
يوم تبدل الأرض غير الأرض والسموات ٤٨ م إبراهيم ١٤	يوم تبدل الأرض غير الأرض والسموات ٤٨ م إبراهيم ١٤	يوم تبدل الأرض غير الأرض والسموات ٤٨ م إبراهيم ١٤
تسبح له السموات السبع والأرض ومن فيهن ٤٤ م الإسراء ١٧	تسبح له السموات السبع والأرض ومن فيهن ٤٤ م الإسراء ١٧	تسبح له السموات السبع والأرض ومن فيهن ٤٤ م الإسراء ١٧
تكاد السموات ينظرن من وتشتق الأرض ٩٠ م مريم ١٩	تكاد السموات ينظرن من وتشتق الأرض ٩٠ م مريم ١٩	تكاد السموات ينظرن من وتشتق الأرض ٩٠ م مريم ١٩
لم تر أن الله أنزل من السماء ماء فنصب الأرض مخضرة ٦٣ م الحج ٢٢	لم تر أن الله أنزل من السماء ماء فنصب الأرض مخضرة ٦٣ م الحج ٢٢	لم تر أن الله أنزل من السماء ماء فنصب الأرض مخضرة ٦٣ م الحج ٢٢
ولو اتبع الحق أهواءهم لفسدت السموات والأرض ٧١ م المؤمنون ٢٣	ولو اتبع الحق أهواءهم لفسدت السموات والأرض ٧١ م المؤمنون ٢٣	ولو اتبع الحق أهواءهم لفسدت السموات والأرض ٧١ م المؤمنون ٢٣
قل لمن الأرض ومن فيها إن كنتم تعلمون ٨٤ م ٢٣	قل لمن الأرض ومن فيها إن كنتم تعلمون ٨٤ م ٢٣	قل لمن الأرض ومن فيها إن كنتم تعلمون ٨٤ م ٢٣
ومن آياته أن تقوم السماء والأرض بأمره ٢٥ م الروم ٣٠	ومن آياته أن تقوم السماء والأرض بأمره ٢٥ م الروم ٣٠	ومن آياته أن تقوم السماء والأرض بأمره ٢٥ م الروم ٣٠
وأبى لهم الأرض المنة أحياناً وأخرجنا منها حبا ٣٣ م يس ٣٦	وأبى لهم الأرض المنة أحياناً وأخرجنا منها حبا ٣٣ م يس ٣٦	وأبى لهم الأرض المنة أحياناً وأخرجنا منها حبا ٣٣ م يس ٣٦
سبحان الذي خلق الأزواج كلها مما تنبت الأرض ٣٦ م ٣٦	سبحان الذي خلق الأزواج كلها مما تنبت الأرض ٣٦ م ٣٦	سبحان الذي خلق الأزواج كلها مما تنبت الأرض ٣٦ م ٣٦
لقد أنعمنا في هذه الدنيا حسنة وأرض الله واسعة ١٠ م الزمر ٣٩	لقد أنعمنا في هذه الدنيا حسنة وأرض الله واسعة ١٠ م الزمر ٣٩	لقد أنعمنا في هذه الدنيا حسنة وأرض الله واسعة ١٠ م الزمر ٣٩
والأرض جميعاً قبضته يوم القيامة والسموات مطويات ٦٧ م ٣٩	والأرض جميعاً قبضته يوم القيامة والسموات مطويات ٦٧ م ٣٩	والأرض جميعاً قبضته يوم القيامة والسموات مطويات ٦٧ م ٣٩
وأشرق الأرض بنور ربها ووضع الكتاب وجس بالنبيين ٦٩ م ٣٩	وأشرق الأرض بنور ربها ووضع الكتاب وجس بالنبيين ٦٩ م ٣٩	وأشرق الأرض بنور ربها ووضع الكتاب وجس بالنبيين ٦٩ م ٣٩
فما بكت عليهم السماء والأرض وما كانوا منظرين ٢٩ م الذخائر ٤٤	فما بكت عليهم السماء والأرض وما كانوا منظرين ٢٩ م الذخائر ٤٤	فما بكت عليهم السماء والأرض وما كانوا منظرين ٢٩ م الذخائر ٤٤
قد علمنا ما تنقص الأرض منهم وعندنا كتاب حفيظ ٤ م ق ٥٠	قد علمنا ما تنقص الأرض منهم وعندنا كتاب حفيظ ٤ م ق ٥٠	قد علمنا ما تنقص الأرض منهم وعندنا كتاب حفيظ ٤ م ق ٥٠
يوم تشقق الأرض عنهم سراعا ذلك حشر طيب يسير ٤٤ م ٥٠	يوم تشقق الأرض عنهم سراعا ذلك حشر طيب يسير ٤٤ م ٥٠	يوم تشقق الأرض عنهم سراعا ذلك حشر طيب يسير ٤٤ م ٥٠
إذا ربيحت الأرض رجاء ٤ م الواقعة ٥٦	إذا ربيحت الأرض رجاء ٤ م الواقعة ٥٦	إذا ربيحت الأرض رجاء ٤ م الواقعة ٥٦
وحلت الأرض والجبال فدكتا دكة واحدة ١٤ م الحاقة ٦٩	وحلت الأرض والجبال فدكتا دكة واحدة ١٤ م الحاقة ٦٩	وحلت الأرض والجبال فدكتا دكة واحدة ١٤ م الحاقة ٦٩
يوم ترجف الأرض والجبال وكانت الجبال كثيباً مهيلاً ١٤ م المزل ٧٣	يوم ترجف الأرض والجبال وكانت الجبال كثيباً مهيلاً ١٤ م المزل ٧٣	يوم ترجف الأرض والجبال وكانت الجبال كثيباً مهيلاً ١٤ م المزل ٧٣
وإذا الأرض مدت ٣ م الانشقاق ٨٤	وإذا الأرض مدت ٣ م الانشقاق ٨٤	وإذا الأرض مدت ٣ م الانشقاق ٨٤
كلا إذا دكت الأرض دكا دكا ٢١ م الفجر ٨٩	كلا إذا دكت الأرض دكا دكا ٢١ م الفجر ٨٩	كلا إذا دكت الأرض دكا دكا ٢١ م الفجر ٨٩
إذا زلزلت الأرض زلزالها ١ م الزلزلة ٩٩	إذا زلزلت الأرض زلزالها ١ م الزلزلة ٩٩	إذا زلزلت الأرض زلزالها ١ م الزلزلة ٩٩
وأخرجت الأرض أنقالها ٢ م ٩٩	وأخرجت الأرض أنقالها ٢ م ٩٩	وأخرجت الأرض أنقالها ٢ م ٩٩
الأرض: الذي جعل لكم الأرض فراشا والسموات بناء ٢٢ م البقرة ٢	الأرض: الذي جعل لكم الأرض فراشا والسموات بناء ٢٢ م البقرة ٢	الأرض: الذي جعل لكم الأرض فراشا والسموات بناء ٢٢ م البقرة ٢
(٨٦) قال إنه يقول إنها بقرة لا ذلول تثير الأرض ٧١ م ٢	(٨٦) قال إنه يقول إنها بقرة لا ذلول تثير الأرض ٧١ م ٢	(٨٦) قال إنه يقول إنها بقرة لا ذلول تثير الأرض ٧١ م ٢
وما أنزل الله من السماء من ماء فأحيا به الأرض بعد موتها ١٦٤ م ٢	وما أنزل الله من السماء من ماء فأحيا به الأرض بعد موتها ١٦٤ م ٢	وما أنزل الله من السماء من ماء فأحيا به الأرض بعد موتها ١٦٤ م ٢
وسع كرمه السموات والأرض ولا يشوده حفظهما ٢٥٥ م ٢	وسع كرمه السموات والأرض ولا يشوده حفظهما ٢٥٥ م ٢	وسع كرمه السموات والأرض ولا يشوده حفظهما ٢٥٥ م ٢
ما قوم ادخلوا الأرض المقدسة التي كتب الله لكم ٢١ م المائدة ٥	ما قوم ادخلوا الأرض المقدسة التي كتب الله لكم ٢١ م المائدة ٥	ما قوم ادخلوا الأرض المقدسة التي كتب الله لكم ٢١ م المائدة ٥
الحد لله الذي خلق السموات والأرض وجعل الظلمات ١ م الأنعام ٦	الحد لله الذي خلق السموات والأرض وجعل الظلمات ١ م الأنعام ٦	الحد لله الذي خلق السموات والأرض وجعل الظلمات ١ م الأنعام ٦
وهو الذي خلق السموات والأرض بالحق ٧٣ م ٦	وهو الذي خلق السموات والأرض بالحق ٧٣ م ٦	وهو الذي خلق السموات والأرض بالحق ٧٣ م ٦
أنذروهم ويهيئ للذي فطر السموات والأرض حنيفاً ٧٩ م ٦	أنذروهم ويهيئ للذي فطر السموات والأرض حنيفاً ٧٩ م ٦	أنذروهم ويهيئ للذي فطر السموات والأرض حنيفاً ٧٩ م ٦
إن ربكم الله الذي خلق السموات والأرض في ستة أيام ٥٤ م الأعراف ٧	إن ربكم الله الذي خلق السموات والأرض في ستة أيام ٥٤ م الأعراف ٧	إن ربكم الله الذي خلق السموات والأرض في ستة أيام ٥٤ م الأعراف ٧
أو لم يهد للذين يرثون الأرض من بعد أهلها ١٠٠ م ٧	أو لم يهد للذين يرثون الأرض من بعد أهلها ١٠٠ م ٧	أو لم يهد للذين يرثون الأرض من بعد أهلها ١٠٠ م ٧
قال موسى لقومه استعينوا بالله واصبروا إن الأرض ١٢٨ م ٧	قال موسى لقومه استعينوا بالله واصبروا إن الأرض ١٢٨ م ٧	قال موسى لقومه استعينوا بالله واصبروا إن الأرض ١٢٨ م ٧
إننا عرضناها في كتاب الله يوم خلق السموات والأرض ٣٦ م التوبة ٩	إننا عرضناها في كتاب الله يوم خلق السموات والأرض ٣٦ م التوبة ٩	إننا عرضناها في كتاب الله يوم خلق السموات والأرض ٣٦ م التوبة ٩
إن ربكم الله الذي خلق السموات والأرض في ستة أيام ٣ م يوسف ١٠	إن ربكم الله الذي خلق السموات والأرض في ستة أيام ٣ م يوسف ١٠	إن ربكم الله الذي خلق السموات والأرض في ستة أيام ٣ م يوسف ١٠

Figure 3-6: a KWOC display specimen from *al-mu`jam al-mufahras li-alfāz al-Qur`ān al-karīm*.

which is also mentioned in the verse. By this method, the searcher who is looking for this particular verse can reach it by locating any of the words found in the verse. However, there are certain issues the compiler has to deal with if he wishes to adopt such a display; these are the method of arranging the alphabet (roots or alphabetic), and the vowel signs. All these issues must be clearly explained to the user in the system. The KWOC display uses the root sequences to arrange the headings. Moreover, one important consideration that should be taken into account by the compiler is that both the KWIC and KWOC displays do not distinguish synonyms; all the terms are given once when they occur in the display as significant terms; no preferences are considered.

Reviewing the above relationships and their displays, it may be concluded that great emphasis is laid on the determination of the subject that is to be served within the Qur'an; if the subject includes a great many of terms which express a relationship between a whole-part or a class-member, then the hierarchical display is useful to cover this. On the other hand, if the subject area includes a number of terms that show an association relationship, then the facet display could be more effective. The choice between the hierarchy display and the tree-structure display depends on the decision of the compiler, that is, on whether he intends to use the alphabetic section as a part of the display or not. This necessitates the use of the hierarchical display within the alphabetic section or as complementary to it. Moreover, the decision between the use of the KWIC/KWOC display or the alphabetic display depends heavily on the purpose of the retrieval system, whether it is to facilitate a control of vocabulary with regard to synonyms or not. The KWIC/KWOC display does not distinguish between synonyms; all the terms are provided as significance terms in the display.

In considering any of these relationships and hence the displays, it must be pointed out that the equation for any retrieval system is this: the higher the

specificity, the more likely it is that the user will be able to retrieve more relevant verses, and conversely, if a system permits the user to achieve high recall, the user will achieve less specificity and less relevant verses. Regarding the whole-part and class-member relationships, there is a point of confusion about the nature of their broad categories; in some cases whole-part relationships are classified as whole-part associative relationships and treated as related terms⁶⁷. Regarding associated terms, Atchison and Glishrist assert that "there is always a risk that the thesaurus compilers may overload the thesaurus with valueless relationships, which may impair precision performance without much improving recall."⁶⁸ They also add that the compiler needs to establish only the relationship that falls into the broad category of related terms.⁶⁹ Combining these two views, it can be stated that only the related terms which express a meaningful and close relationship need to be considered, with no distinction in treatment between the whole-part, class-members or associated terms. Applying this conclusion to the above displays, it may be suggested that the facet display, working as a complementary alphabetic section, is best able to serve the purpose, while the conventional alphabetic display is preferable to KWIC and KWOC displays, if familiarity for the user is the main consideration.

3.7. Conclusion

In the construction of any indexing system, it must be decided, primarily, who is to be served and what is the most useful display for the subject field. This is because term indicators need to be carefully selected, so that the user gets only such information as is relevant at the time. Obviously, this calls for a planning scheme on the part of the designer. Specifically, the designer has to know the type of information requested and achieve the necessary solution to the problem. In genuine developmental work, the designer has to conduct experiments on the basis of practical problems.

⁶⁷ TEST thesaurus treats whole-part relationships as terms associatively related, *op.cit.*, p.678.

⁶⁸ Atchison and Glishrist, *op.cit.*, p.44.

⁶⁹ *Ibid.*, p.48.

CHAPTER FOUR

INFORMATION TECHNOLOGY PROBLEMS

IN QUR'ANIC STYLE

4.1. Overview

In the previous two chapters Qur'anic language has been studied in terms of its effect on the efficiency of the design of a manual subject retrieval system. For some time it has been recognized that the ability to assign and retrieve data manually from an entire text is extremely desirable from the point of view of cost, time and money. Some computer scientists have, therefore, turned their attention to the seemingly difficult problem of assigning and retrieving the data from free-text searching by the use of computer technology, but vast problems have appeared in dealing with the natural language when interacting through machine processing. Consequently, the role of linguistics in the field of computer technology has become increasingly important. Also since the design and operation of large-scale information systems has become a cause of concern to an ever-increasing segment of the user world, man-machine interface study has been undertaken. Man-machine interface is the process of designing an interaction system between the user and the computer, so that the computer system becomes efficient and easy to use and does exactly what people expect it to do.

This chapter attempts to test whether or not Qur'anic terminology and Qur'anic verses can be processed and retrieved by the computer. The test involves linguistic theories that have been employed for language processing by Arab programming compilers. The test also includes the pioneer experiments that have been used for indexing. Also, the technical searching strategies that are used by various Arabic software systems are evaluated.

4.2. Automatic Search Analysis

Underlying the search for the possibility of the Qur'an being processed by the computer is the need to investigate modern computational linguistic theories. These theories may be categorized as morphological analysis (such as dictionary look-up); syntactical analysis (such as phrase-structure grammar and transformation-generating grammar); and semantical analysis (such as case grammar). All these theories have been used by Arab programming compilers. However, with the exception of al-'Alamiyyah software, Arab compilers apply these theories only to modern Arabic, and are thus of limited relevance to this chapter.

4.2.1. Morphological analysis

Morphological analysis is the process that identifies the words in terms of their elementary construction, regardless of their position in the text¹. The morphological analysis of linguistic processing is concerned with the processing of individual word forms and of recognizable portions of words. Morphological analysis is the reduction of the whole word to its stem, that is, the removal of word affixes. This process is done by reference to the dictionary look-up. To consult a dictionary look-up, the operation starts by separating the text words into individual word items. The input words are then matched with the dictionary entries. The program scans the input buffer and searches only for the words that might be included in the part of the dictionary being consulted at the moment. All data found in the dictionary are returned to the input array, which is then processed by reference to the second part of the dictionary, and so on, until the complete dictionary has been matched to the present input. When all the words in the text have been processed, an assembly routine collects all the entries by constructing a chained list². These are the normal stages in

¹ Salton, G. (1989), *Automatic Text Processing: The Transformation Analysis, and Retrieval of Information by Computer*, New York, p.379.

² *Ibid.* (1968), *Automatic Information Organization and Retrieval*, New York, p.86.

processing a dictionary look-up in any natural language being searched by a computer. However, in the Arabic language, a number of spelling rules are incorporated into four types of dictionary look-up, viz, suffix, prefix, root, and pattern, to cover the principal morphological analysis and generation process.

In the Arabic language analysis process, when a given word is provided for computer searching, for example, *âmannâ* **أَمْنَا** (we believed), the program divides the word **أَمْنَا** into a matching stem plus a longer suffix or prefix, that is (**أ** + **أَمْن** + **نَا**). Then the prefix **أ** will be matched with the prefix dictionary, the suffix **نَا** will be matched with the suffix dictionary, and the stem **أَمْن** will be checked in the root dictionary. The generation process, on the other hand, starts by attaching all possible forms of the prefixes and suffixes^{to produce} *âmannâ* **أَمْنَا** , *îmân* **إِيمَان** (faith), *mû'minûn* **مُؤْمِنُونَ** (believers), etc. Finally, the program matches all the generated words with the Qur'anic data and supplies the corresponding verses.

Although this process looks simple and straightforward, in practice it turns out to be complex and, in many cases, ineffective. This is due to the following difficulties: first, the reduction of the input words into their roots can cause the generating process to form mistaken words. For instance, the word *âmannâ* **أَمْنَا** without vowel signs could be understood as a result of consulting the pattern dictionary look-up as *amn* **أَمْن** which could lead to the generation of words such as *aymân* **أَيْمَان** (oaths) and *amânah* **أَمَانَة** (truthfulness), and hence lead to the retrieval of verses not required. Secondly, in the reduction process of dividing the input words, rules should be carefully derived to distinguish those letters which constitute suffixes and prefixes. For instance, the prefix *al-* **ال** (the) in *al-Qur'an* **القرآن** (the Qur'an) should be distinguished from the actual *al-* **ال** in *Allah* **الله** (God). Similarly the reduction of words into their stems should be determined in such a way as not to create another unrequired stem. For instance the suffix *t* **ت** in *bint* **بنت** (girl) should be distinguished as an

original part and not be reduced to *bin* بن (son of), which is also a valid reduction. Morphological analysis is very important as a preliminary elementary process designed to distinguish the individual words within the text, though this process is not enough to eliminate the ambiguity that results from taking the word out of context. For example,

"Say: He is God, one. God, the eternal Refuge. He begets not, nor has He begotten, and neither is there any equal to Him" (112:1-4)

«قُلْ هُوَ اللَّهُ أَحَدٌ، اللَّهُ الصَّمَدُ، لَمْ يَلِدْ وَلَمْ يُولَدْ، وَلَمْ يَكُنْ لَمْ كُنْ فَوْأ أَحَدًا» (١١٢:١-٤)

In the above verse, the word *aḥad* أحد in the first phrase refers to the number one: "the unity of God"; but this cannot be distinguished on a morphological level from the word *aḥad* أحد in the fourth phrase, which means someone or anybody. The analysis therefore requires the recognition of the words in context, which is the task of syntactical analysis.

4.2.2. Syntactical analysis

Syntactical analysis is the stage of checking the correctness of the structure of sentences and removing the ambiguities by bringing into play the position of the words in relation to each other, independently of their meaning; it has to do with the well-formedness of utterances and sentence structures.³ Syntactical text analysis decomposes complete utterances into simpler phrases, and identifies the structural relations of the sentence components. Several different kinds of grammars have been used in natural language programs, all of which seek to parse⁴ the input sentences to help determine their meanings. Probably the most important contribution in the field of computational linguistics is the "theory of generating grammar" introduced by Noam Chomsky in 1957⁵. The kind of grammar that Chomsky described was based on the belief that human language

³ Salton (1989), *op.cit.*, p.386.

⁴ Parsing is the use of grammatical rules and other sources of knowledge to determine the functions of the words in the input sentence in order to create a more complicated data structure for computational analysis and generation.

⁵ Chomsky, N. (1957), *Syntactic Structures*, The Hague, Mouton.

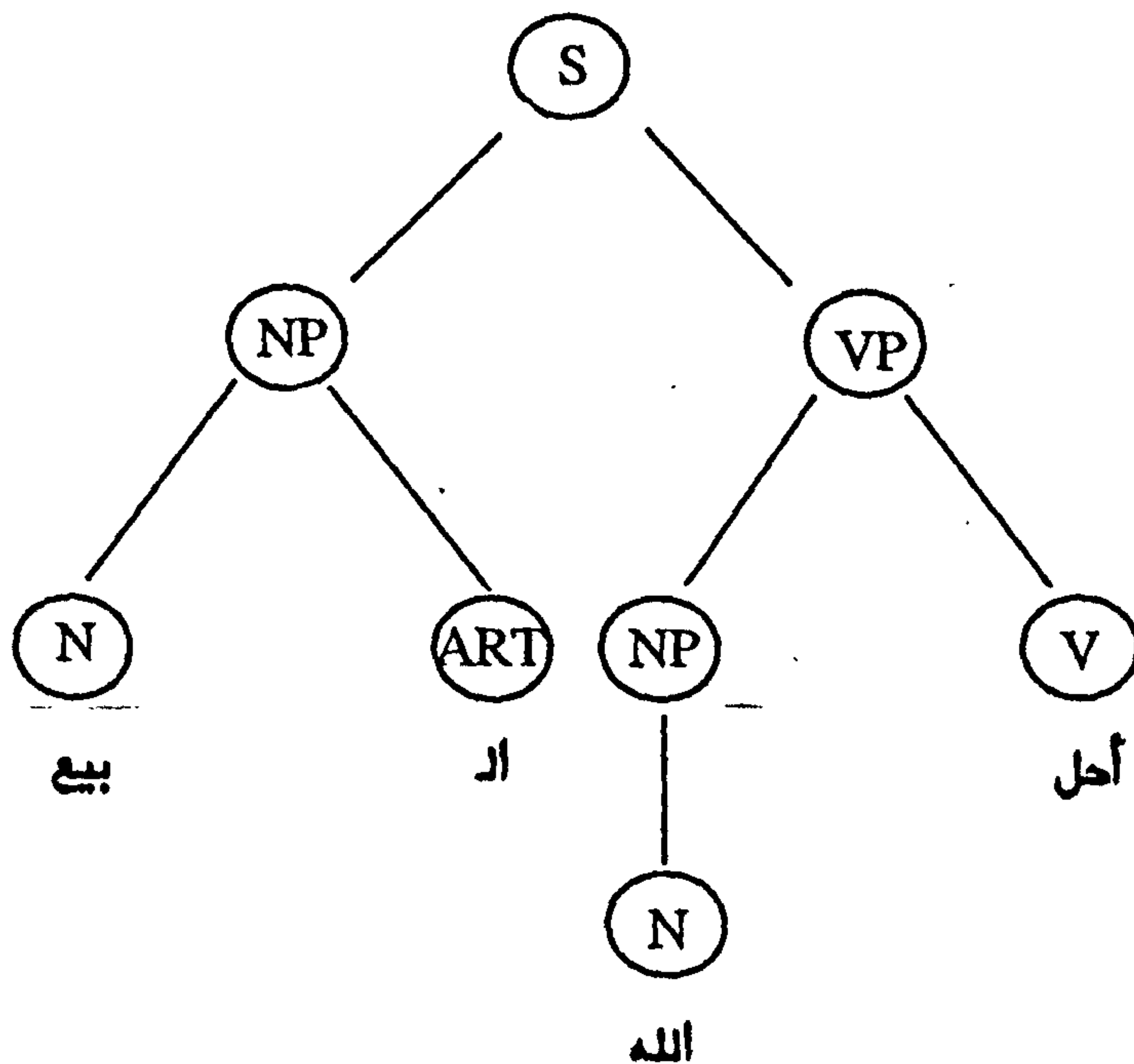
is finite, that learning a language is not only a matter of hearing and memorising words, phrases etc. but rather a matter of developing innate knowledge of the structure of language that all human are born with. However, Chomsky attempted to delineate these inherent language structures by developing a series of generative grammars. As Chomsky explains in his book *Syntactic Structures*, a generative grammar is "a rules system formalized with mathematical precision that generates, without drawing upon any information that is not represented explicitly in the system, the grammatical sentences of the language that it describes and assigns to each sentence a structural description, or grammatical analysis"⁶. A typical type of generative grammar that describes the infinite state of language is "phrase-structure grammar (PSG)". An important property of PSG in natural language programs is that it analyses sentences into their elementary components, representing them by structure. Take, for example, the Qur'anic phrase:

"... And yet God has permitted trafficking and forbidden usury"
(2:275)

«... وَأَهْلَ اللَّهِ التَّبِيعَ وَهَرَمَ الرَّبِوَاءَ...»
(٢٧٥:٢)

The underlined phrase can be presented in Chomsky's tree structure form thus
(Figure 4-1):

S : Sentence
VP : Verb Phrase
NP : Noun Phrase
N : Noun
V : Verb
ART : Article



⁶ *Ibid.*, p.57.

The analysis in this process (in line with Salton)⁷ starts by scanning the sentence from right to left as it stands in Arabic. When the analyzer reaches the first verb it will be identified in the dictionary as the verb *aḥalla* أحل (has permitted), followed by the noun *Allah* الله (God) to generate the verb phrase (*aḥalla Allah* أحل الله). The scanning will continue by combining the noun phrase *al-bay'* البيع (trafficking) with the verb phrase (أحل الله) to generate the final sentence (أحل الله البيع). When the final sentence is formed and all the input words are properly accounted for, a complete analysis is obtained that is correct according to grammar in use. However, the representative sentence of the tree structure will be recognized by the analyser as:

Sentence ----- noun phrase + verb phrase
 verb phrase ----- verb + noun phrase
 noun phrase ----- noun + determiner
 verb ----- *aḥalla* أحل
 noun ----- *Allah* الله | *al-bay'* البيع

In that sense, the PSG distinguishes the noun in the sentence as either *al-bay'* البيع or *Allah* الله. This is in itself a major disadvantage of PSG, since because of this indistinct position, the PSG can also generate a sentence type *aḥalla Allah al-bay'* أحل الله البيع (God has permitted trafficking), *aḥalla al-bay' Allah* أحل البيع الله (trafficking has permitted God), *aḥalla al-bay' al-bay'* أحل البيع البيع (trafficking has permitted trafficking), or *aḥalla Allah Allah* أحل الله الله (God has permitted God). Moreover, this grammar does not account for all aspects of the natural language; for example, it does not contain any reference to conjunctions at all and therefore would not be able to produce compound sentence elements such as *wa ḥarrama al-ribâ* وحرم الربوا (and forbidden usury).

⁷ Salton (1989), *op.cit.*, p.391.

To deal with word-order and compound sentences, Chomsky developed another complex type of grammar known as transformational generative (TG). In a transformation grammar, two components are required to produce an acceptable sentence: the base component and the transformation component. The base component of the grammar generates the so-called deep structure of the sentence which reflects the deep structure of the sentence that is not normally used in speech or writing (e.g. a passive voice sentence). The transformation component operates the basic component and generates the surface structure of the sentence which reflects actual use in speech or writing (e.g. an active voice sentence). In advancing this theory, Chomsky has drawn the assumption that each sentence has a 'deep' structure underlying the 'surface' structure which would actually be used in speech or writing. The deep structure can experience a variety of transformations of form on its way to the surface, while retaining the essential meaning of the sentence. Chomsky summarizes the generation of the sentence as: sentence generation begins from a PSG and selection of words from a lexicon to form the base of the grammar; their output is the deep structure. A scheme of transformational rules maps out the movement from deep structures to surface structures, and together they form the syntactic components of the sentence⁹. In other words, surface and deep structures are interrelated by an intricate series of transformations, and the place of the semantic component makes them capable of relating verses having the same meaning and derived from the same deep structure. Following Chomsky's pattern, the surface and deep structure can be represented in the two Qur'anic verses such as (Figure 4-2):

"He has only forbidden you dead meat" (2:173)

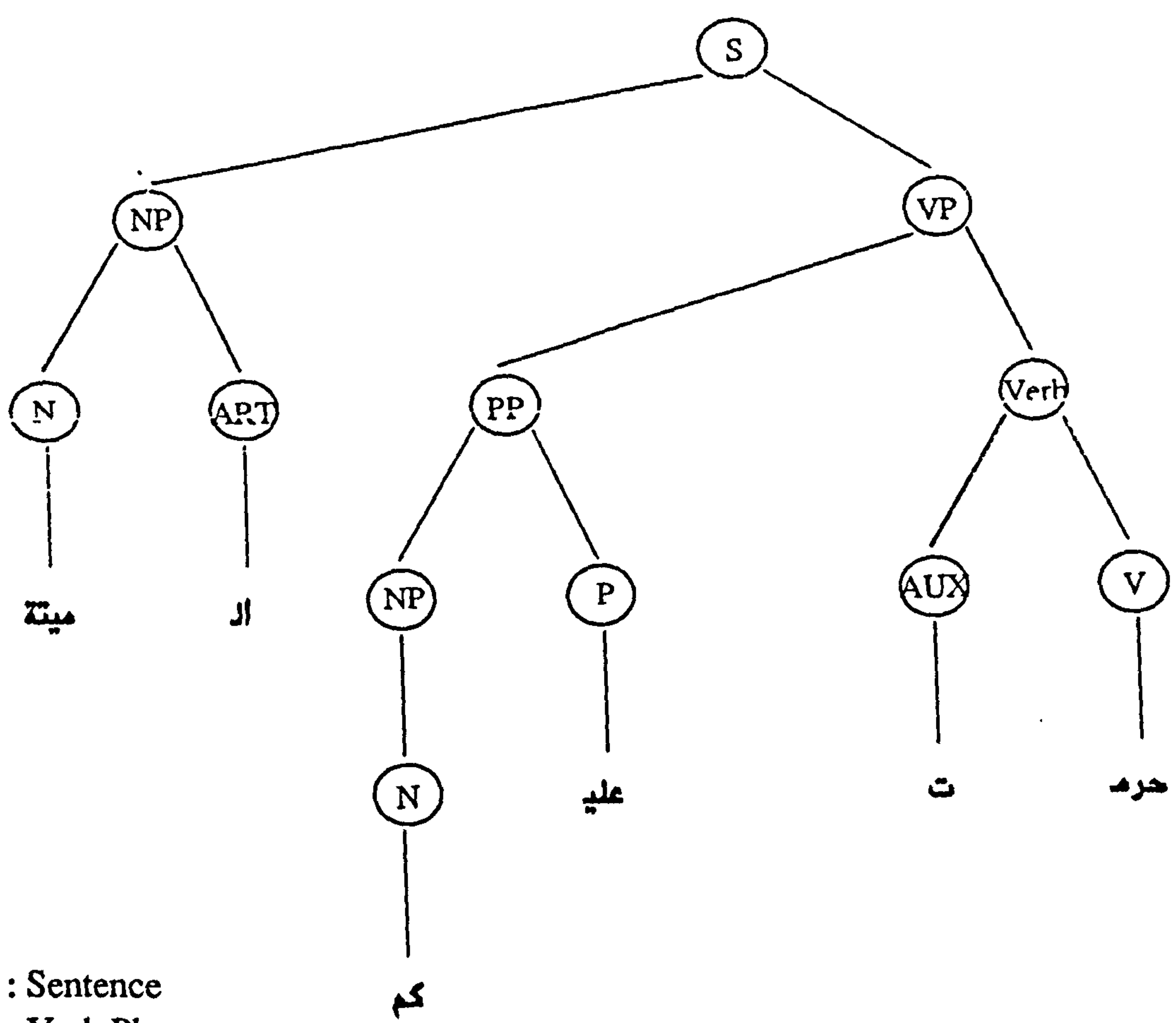
« إِنَّمَا حَرَّمَ عَلَيْكُمُ الْمَيْتَةَ . . . » (١٧٣:٢)

"Forbidden to you are dead meat" (5:3)

« حُرِّمَتْ عَلَيْكُمُ الْمَيْتَةُ . . . » (٥:٣)

⁸ Chomsky, N. (1965), *Aspects of the Theory of Syntax*, M.I.T Press, Massachusetts.

⁹ *Ibid.*,



- S : Sentence
- VP : Verb Phrase
- NP : Noun Phrase
- PP : Proposition Phrase
- V : Verb
- N : Noun
- ART : Article
- AUX : Auxiliary

Figure 4-2a: deep structure of the Qur'anic statement (5:3)

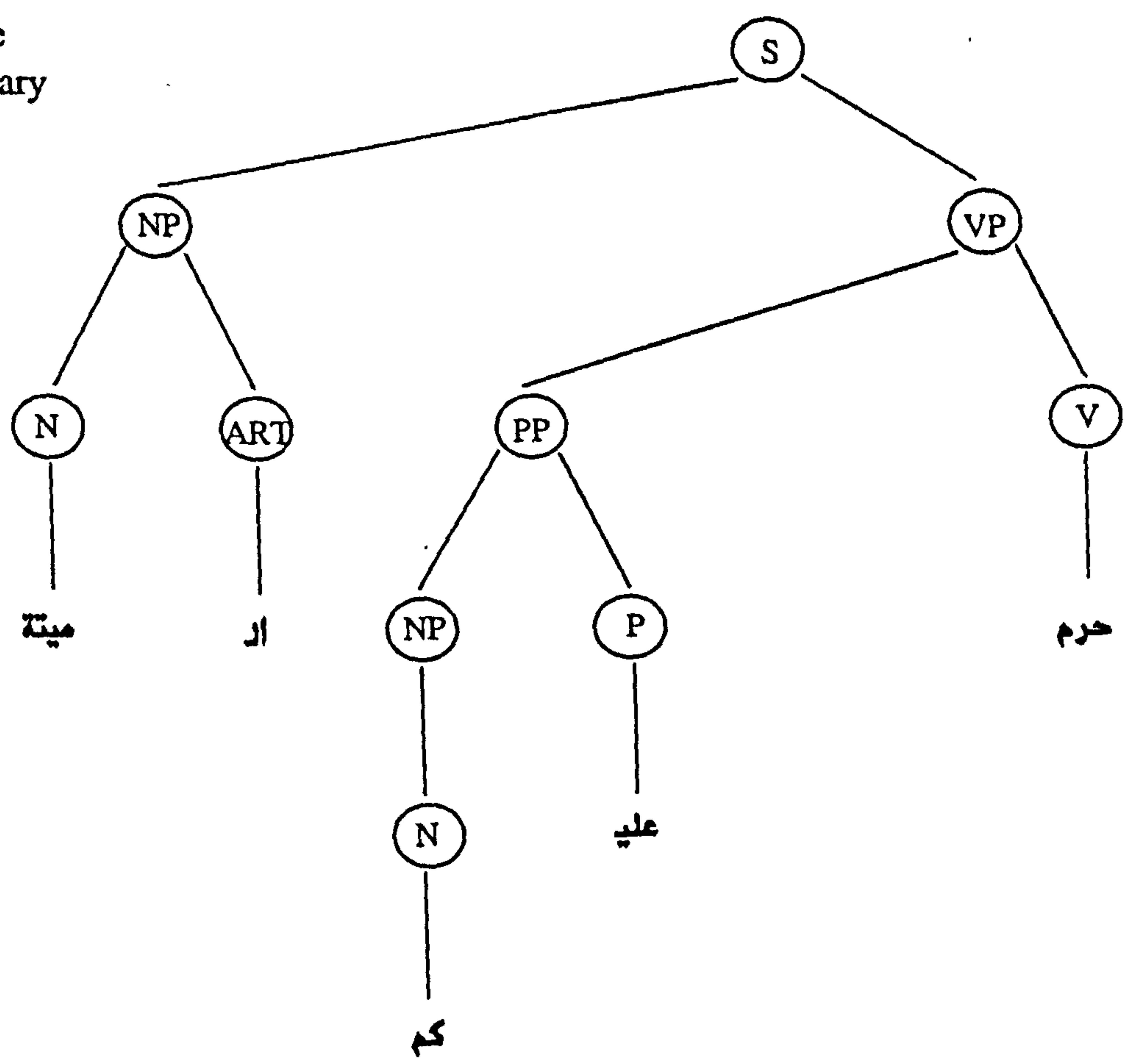


Figure 4-2b: surface structure of the Qur'anic statement (2:173)

During the transformation process, the sequence of processes includes ellipses and word order and these are applied to the deep structure in order to produce a proper surface structure. Through these transformations, verses can change from the passive voice form into the active voice. Such a transformation can be shown in the case of the above two verses as:

Operation	Transformation Process	
Original	<i>ḥurrimat 'alaykum al-maytah</i>	حُرِّمَتْ عَلَيْكُمُ الْمَيْتَةَ
Phrase marker	<i>ḥurimat 'alaykum al-maytah</i>	حُرِّمَتْ عَلَيْكُمُ الْمَيْتَةَ
Active transformation	<i>ḥaramat 'alaykum al-maytah</i>	حُرِّمَتْ عَلَيْكُمُ الْمَيْتَةَ
Subject - verb agreement	<i>ḥarama 'alaykum al-maytah</i>	حُرِّمَ عَلَيْكُمُ الْمَيْتَةَ
Final	<i>ḥarrama 'alaykm al-maytah</i>	حَرَّمَ عَلَيْكُمُ الْمَيْتَةَ

The final phrase marker is then checked to see whether it is derivable according to the base rules of transformational grammar, and, if so, it is accepted as a correct generalized marker; if not, it is discarded. However, the major disadvantage of TG is that it does not provide a basis for identifying similar verses which have a different structure orientation. For example consider:

"... with plentiful fruits for you, from which you eat." (23:19)

«... لَكُمْ فِيهَا فَوَاحِشٌ كَثِيرَةٌ وَمِنْهَا تَأْكُلُونَ»
(١٩:٢٣)

"... And with many benefits for you, from which you eat." (23:21)

«... وَلَكُمْ فِيهَا مَنَافِعُ كَثِيرَةٌ وَمِنْهَا تَأْكُلُونَ» (٢١:٢٣)

The failure of transformation grammar to explain differences and similarities in the above two cases demands, however, a type of grammar able to deal with the problems of phrase synonyms recognition.

Certainly, the reason for the failure to recognize these parallel meanings is due to the lack of semantic analysis. Moreover, the syntactic approach alone cannot normally be extended outside the boundaries of a single case. Furthermore, it is

not usually easy to predetermine what type of knowledge may be needed for particular semantic interpretations. The best way to overcome this type of failure is to establish a specialized type of grammar which includes all the necessary syntactical and semantic information appropriate to the exact case.

4.2.3. Semantic analysis

Semantic analysis is the stage of addressing the correctness of the meaning of the sentences by attaching to the words what it is agreed to call a meaning¹⁰. In principle, syntactic analysis accompanies the generation of semantically implausible output. Of the various models for syntactic/semantic representation, the Case Grammar (CG) of Fillmore appears to have the most explicit mechanism for relating formal language to natural language sentences. In his paper "A case for case"¹¹ Fillmore postulates that: "The sentence in its basic structure consists of a verb and one or more noun phrases, each associated with the verb in a particular case relationship."¹² According to Fillmore, a sentence is made up of a proposition, a tenseless set of relationships involving verbs and nouns, separated from what might be called the modality constituent. This latter will include such modalities on the sentence-as-a-whole as negation, tense, mood, and aspect.

Fillmore names the mechanism for identifying the specific cases that allow for any particular verb as case frame¹³. The case frame for each verb indicates the relationships which are required in any sentence in which the verb appears and those relationships which are optional. Specifically, Fillmore's notions include the following¹⁴:

¹⁰ Salton (1989), *op.cit.*, p.398.

¹¹ Fillmore, C. (1968), *A Case for Case*, in: *Universals in Linguistic Theory*, edited by Holt, Rinehart and Winston, New York, pp.1-88.

¹² *Ibid.*, p.21.

¹³ *Ibid.*, p.23.

¹⁴ *Ibid.*, pp.24-25.

Case identifiers	Case definitions
AGENTIVE (A)	The case of the instigator of an action.
INSTRUMENTAL (I)	The case of the physical cause of an action.
DATIVE (D)	The case of the animate being affected by an action.
FACTITIVE (F)	The case of the object or being resulting from the action.
LOCATIVE (L)	The case of the location of the action.
OBJECTIVE (O)	The case of the final state or place of the action.

However, taking for example the following - Qur'anic verse, Fillmore's notion will appear thus (Figure 4-3):

"[He] brings forth the living from the dead and [He] brings forth the dead from the living" (30:19)

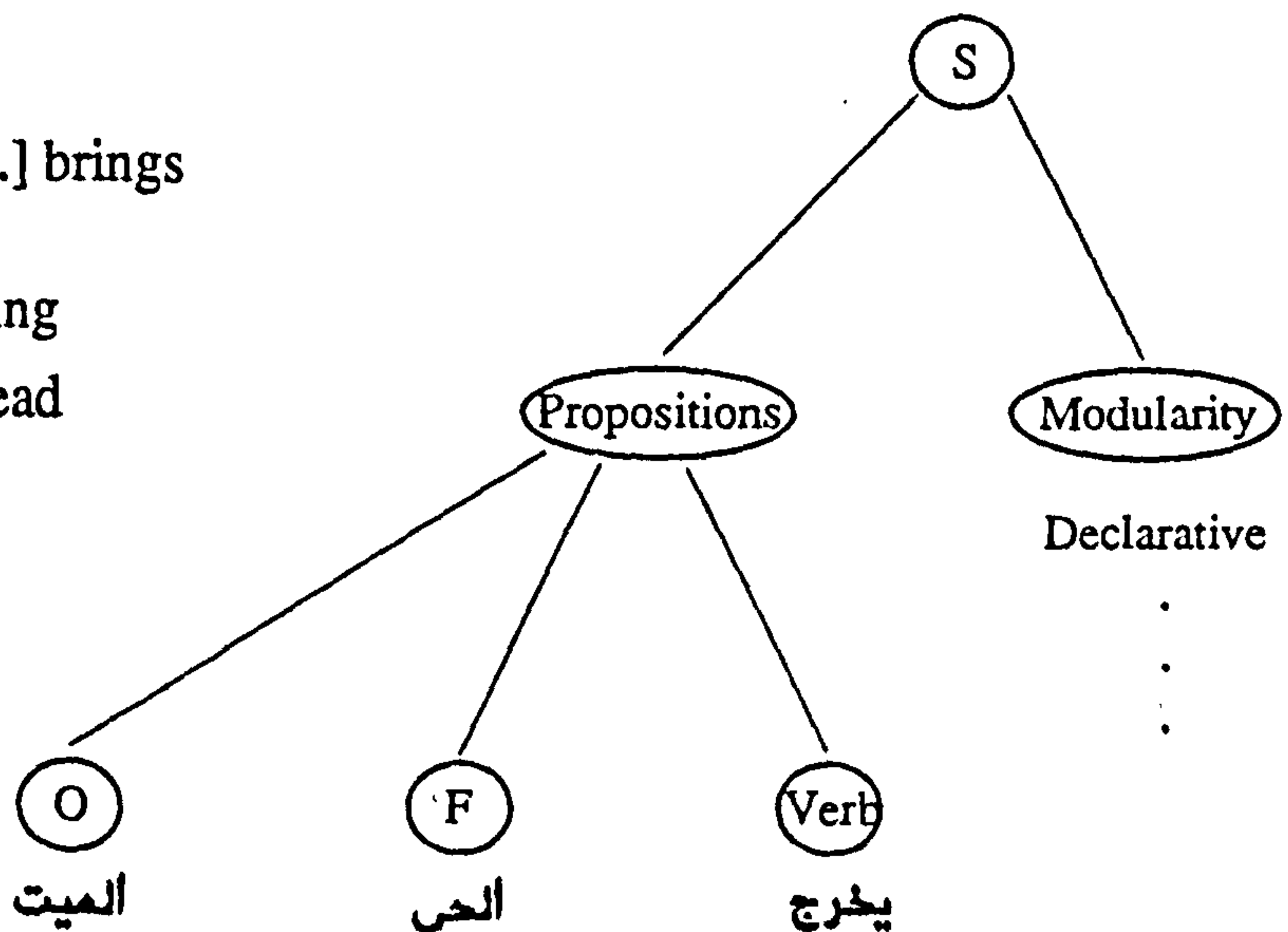
«يُخْرِجُ الْحَيَّ مِنَ الْمَيِّتِ وَيُخْرِجُ الْمَيِّتَ مِنَ الْحَيِّ» (١٩:٣٠)

[(O)(F).....] verb

[(the living)(the dead).....] brings

F: *al-hayy* الحى the living

O: *al-mayit* الميت the dead



On the line of Salton¹⁵, when the analysis is operated, the CG compares the expectations embodied in case frames and fills the slots with the appropriate sentence units. This process is done by using the case identifiers and by reference to the special marks accompanied to the case definitions (e.g. prepositions, conjunctions etc.). The deep structure is established by a tree in which the noun phrases are dominated by states indicating their role relations,

¹⁵ Salton (1989), *op.cit.*, p.402.

and a standard set of transformational rules operates to produce the appropriate surface structure. By this process, the CG identifies the verb *yukhrij* يُخرج (brings) and then compares the case identifiers embodied in the case frames which is *min* من (from) preposition and then fills the slots with the appropriate verse units. For instance, *al-hayy* الحى (the living) will be filled into the slot FACTITIVE and *al-mayit* الميت (the dead) will be filled into the slot OBJECTIVE. Also CG will recognize the absence of the subject *Allah* الله (God) because of the emptiness of the slot AGENTIVE. Unfortunately the major disadvantage in CG is that the above verse will be recognized by CG only if the first part is entered. In other words, if either of the two parts has been entered and analysed, for instance, CG will insist that *al-hayy* الحى is treated as FACTITIVE and *al-mayit* الميت treated as a OBJECTIVE, and will not interchange them (i.e. CG will reject the interchange that has happened in the second part of the verse). This means that the CG cannot deal with linguistic problems that require interpretations for semantically ambiguous statements.

To overcome this type of complexity Katz and Fodor have developed techniques for dealing with semantic problems within the framework of transformation grammar¹⁶. In their article "The Structure of a Semantic Theory" the authors propose two components for a semantic theory: a dictionary and a set of projection rules. The dictionary will provide, for every lexical item (or word) in the language, a phonological description, a syntactic or grammatical portion. The lexical entries in the dictionary or lexicon contain two primary parts: the grammatical portion and the semantic portion. The former provides grammatical markers, to identify the possible grammatical uses of the word, while the latter includes semantic markers and distinguishers, which are used to distinguish the various senses of each grammatical use of the

¹⁶ Katz, J. and Fodor, J. (1963), *The Structure of a Semantic Theory*, *Language*, 39, 2(1), pp.170-210.

word to disambiguate the word. To follow this theory, let us take for example, the Qur'anic verse:

"*al-najm* and the trees bow themselves" (55:6)

«وَالنَّجْمُ وَالشَّجَرُ يَسْجُدَانِ» (٦:٥٥)

According to al-Qurtubî, the word *al-najm* النجم has two lexical meanings "star" which goes directly to the lexical meaning of the word and hence provides the general meaning of the verse that both the star and the trees together are meant to demonstrate that near and far things prostrate themselves to the greatness of God. Another meaning to the word *al-najm* النجم is "stemless plant" (shrub), which accords with the sequence of the words and meaning in the phrase as well as the rest of the chapter¹⁷. This, however, means that the two meanings, which are attached to the word *al-najm* النجم by interpretation, will be provided in the dictionary as star and shrub. The dictionary entry for the word *al-najm* النجم would include markers to allow for disambiguation. This process of applying the projection rules to the verse and its semantic markers results in different interpretations of the meaning in the verse based on all possible combinations of semantic markers. Thus the two words *al-najm* النجم and *al-shajar* الشجر will give the following two possible combinations of markers:

(1) *al-shajar* (1) + *al-najm* (1), where *al-najm* means star

(2) *al-shajar* (1) + *al-najm* (2), where *al-najm* means shrub

By checking the verb and the combinations in the dictionary, the grammar eliminates the sense (1) because the word *al-shajar* الشجر requires *al-najm* النجم to be shrub. However, for the grammar to justify the first meaning of *al-najm* النجم as star, a combination in the verse is required such as *al-najm wa al-shams* النجم والشمس (the star and the sun), or *al-najm wa al-qamar* النجم والقمر (the star and the moon) or any physical object of a similar

¹⁷ al-Qurtubî, *op.cit.*, vol. xvii, pp.153-154.

nature. Certainly this is not the case in every situation, where the semantic markers can distinguish such combinations. In many cases, the semantic meanings require an outside knowledge which could be beyond the capability of Katz and Fodor's semantic grammar. For instance, in the following two verses the word *hudâ* هدى, with the literal meaning "right guidance", has been used metaphorically in both positions:

"... Say: 'God's guidance is that real guidance' (2:120)

« قُلْ إِنَّ هُدَى اللَّهِ هُوَ الْهُدَىٰ »
(١٢:٢)

"... Say: 'Guidance is God's guidance' (3:73)

« قُلْ إِنَّ الْهُدَىٰ هُدَى اللَّهِ »
(٧٣:٣)

According to al-Karamânî the word *hudâ* هدى in the first verse refers to the direction of the Ka'bah as implied by the context and the occasion of revelation, while in the second verse, the word refers to the religion of Islam¹⁸. As a matter of fact, the word *hudâ* هدى has appeared in its metaphorical use in the Qur'an in fourteen occurrences as reported by al-Tha'âlibî¹⁹, and in sixteen occurrences as reported by al-Damaghânî²⁰, while Abdus Sattar who reviewed the commentators' interpretations on *hudâ* هدى reported thirty-three different meanings²¹. These are given below:²²

<i>al-tawfiq</i>	التوفيق	(consistence)	as in (1:5)
<i>al-ṣawâb</i>	الصواب	(right)	as in (2:5)
<i>al-istibṣâr</i>	الإستبصار	(endowment with reason)	as in (2:16)
<i>al-rasûl</i>	الرسول	(messenger)	as in (2:38)
<i>al-kitâb</i>	الكتاب	(God's book)	as in (2:38)
<i>al-qiblah</i>	القبلة	(direction of praying)	as in (2:120)
<i>ba'thât al-nabiyy</i>	بعثة النبي	(the rising of the Prophet)	as in (2:159)
<i>al-tathbîṭ</i>	التثبيت	(confirmation)	as in (2:213)
<i>al-inqitâ' al-hujjah</i>	انقطاع الحجج	(separation from evidence)	as in (2:258)
<i>al-Islâm</i>	الإسلام	(religion)	as in (3:73)
<i>al-ta'lîm</i>	التعليم	(teaching)	as in (4:26)

¹⁸ al-Karamânî, *op.cit.*, p.50.

¹⁹ al-Tha'âlibî, *op.cit.*, pp.270-272.

²⁰ al-Damaghânî, *op.cit.*, pp.473-476.

²¹ Abdus Sattar, M. (1978), *wujuh al-Qur'an: A Branch of Tafsir Literature*, Islamic Studies, 17(2), pp.137-152.

²² Abdus Sattar asserts that the interpretations of the word *hudâ* have been collected from different sources in which it is not necessary that each and every meaning recorded above should be agreeable to all scholars of the Qur'an. He also claimed that if any meaning is apparently taken by the reader to be at first glance unreasonable, reference to the authentic sources in accordance with the context may in fact make it reasonable.

<i>al-faḍl</i>	الفضل	(superiority)	as in (4:51)
<i>al-ma'rifah</i>	المعرفة	(knowledge)	as in (6:97)
<i>al-Sunnah</i>	السنة	(practice)	as in (6:90)
<i>al-dalālah 'ala al-jannah</i>	الدلالة على الجنة	(guidance to Paradise)	as in (10:9)
<i>al-iṣlāḥ</i>	الإصلاح	(correction)	as in (12:52)
<i>al-da'wah</i>	الدعوة	(invitation)	as in (13:7)
<i>al-imān</i>	الإيمان	(faith)	as in (19:76)
<i>al-dalīl</i>	الدليل	(sign)	as in (20:10)
<i>al-ilhām</i>	الإلهام	(inspiration)	as in (20:50)
<i>al-mawt 'ala al-Islām</i>	الموت على الإسلام	(death on Islam)	as in (20:82)
<i>al-hifz</i>	الحفظ	(protection)	as in (22:54)
<i>al-irshād</i>	الإرشاد	(direction)	as in (28:22)
<i>al-ta'rīf</i>	التعريف	(determination)	as in (28:56)
<i>al-taqdīm</i>	التقديم	(sending forward)	as in (37:23)
<i>al-Tawrah</i>	التوراة	(the Torah)	as in (40:53)
<i>amr Muḥammad</i>	أمر محمد	(the mission of Muhammad)	as in (47:32)
<i>al-Qur'an</i>	القرآن	(the Qur'an)	as in (53:23)
<i>al-tawḥīd</i>	التوحيد	(monotheism)	as in (61:9)
<i>al-istirjâ'</i>	الإسترجاع	(reclamation)	as in (64:11)
<i>al-bayân</i>	البيان	(explanation)	as in (76:3)
<i>al-thawâb</i>	الثواب	(reward)	as in (92:12)
<i>al-idhkâr</i>	الإنكار	(reminding)	as in (93:7)

In this case the lexicon has to be fed with all the above meanings and their verse numbers in order to supply the states in the networks with the required semantic data, yet still the grammar cannot disambiguate the metaphorical homographic use of the word as indicated in the Qur'an without additional external knowledge. The typical system to deal with this kind of difficulty should be supplied initially by all the necessary syntactic and semantic information and also connected with a database to retrieve any specialized knowledge in the narrow subject specialization. This is normally referred to as discourse analysis.

4.2.4. Knowledge-based analysis

A knowledge-based analysis is an integration of syntactic and semantic analysis with a specific body of knowledge that allows the user to deal with more sophisticated aspects of language and discourse. As a basic part of its function, a knowledge-based analysis classifies the concepts of interest and specifies certain relationships between the entities by supplying facts and relations from the database. The most influential declarative knowledge-based representation schemes are Semantic Nets and Frame Models.

The basic functional unit of Semantic Networks (SNs) is a structure consisting of two points, or "nodes", linked by an "arc". Each node represents some concept and the arc represents a relation between pairs of concepts. Such pairs of related concepts may be thought of as representing a simple fact. Nodes are labelled with the name of the relevant relation. Moreover, any node may be linked to any number of other nodes, thus giving rise to the formation of a network of facts. For example, take the following four Qur'anic verses:

"And We created man of clay, of moulded mud" (15:26)

«وَلَقَدْ خَلَقْنَا الْإِنْسَانَ مِنْ صَلْصَلٍ مِنْ حَمِإٍ مَسْنُونٍ» (٢٦:١٥)

"And We created man and know what his own self murmurs within him...." (50:16)

«وَلَقَدْ خَلَقْنَا الْإِنْسَانَ وَنَعْلَمُ مَا تُوَسَّوَسُ بِهِ نَفْسُهُ...» (١٦:٥٠)

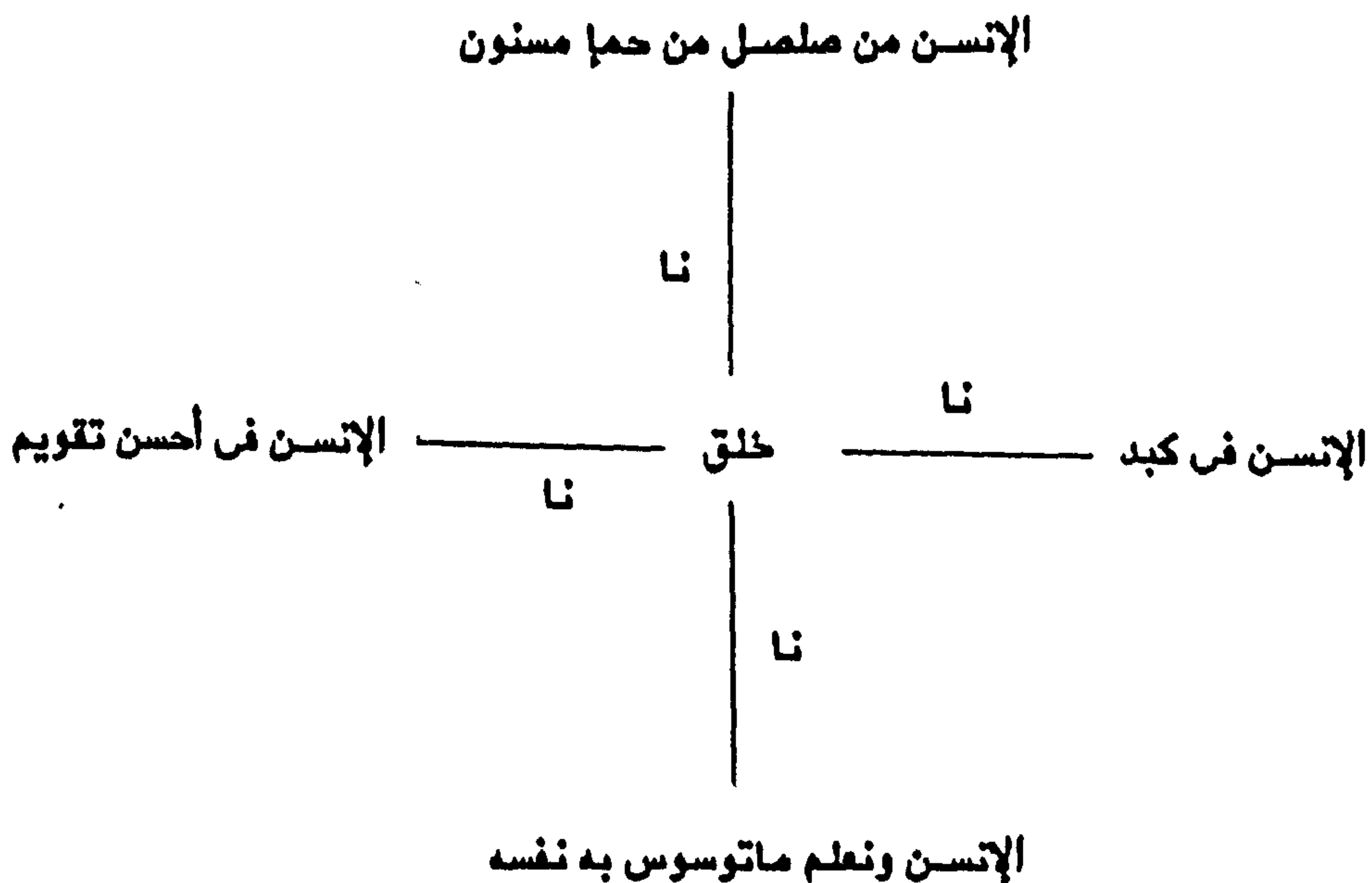
"We created man in drudgery" (90:4)

«لَقَدْ خَلَقْنَا الْإِنْسَانَ فِي كَبَدٍ» (٩٠:٤)

"We created man in the best shape" (95:4)

«لَقَدْ خَلَقْنَا الْإِنْسَانَ فِي أَحْسَنِ تَقْوِيمٍ» (٩٥:٤)

These verses will be presented in the verb node *khalaq* خلق (created) in a network as follows (Figure 4-4):



A great disadvantage, however, in the Semantic Nets is the kind of knowledge representation that needs to be in the nodes. For instance, a distinction is needed to be made between a general statement such as "Divorced women shall wait by themselves three menstrual courses . . ." (2:228)

«وَالْمُطَلَّقَاتُ يَتَرَبَّصْنَ بِأَنْفُسِهِنَّ ثَلَاثَةَ قُرُوءٍ . . .» (٢٢٨:٢)

which concerns all women who are divorced and hence indicates all the members of a class, and a specific statement such as "O you who believe, if you marry believing women, and you divorce them before you touch them, you shall have no waiting period to reckon on them . . ." (33:49)

«يَا أَيُّهَا الَّذِينَ آمَنُوا إِنَّا نَكَحَّتُمُ الْمُؤْمِنَاتِ ثُمَّ طَلَقْتُمُوهُنَّ مِنْ قَبْلِ أَنْ تَمْسُوهُنَّ فَمَالَكُمْ عَلَيْهِنَّ مِنْ عِدَّةٍ تَعْتَدُونَهَا . . .» (٤٩:٣٣)

which refers to a specific class of women; those who are divorced and who have not been touched.

Compare the distinction between an attributive statement such as ". . . And the bearing and the weaning of him is thirty months . . ." (46:15)

«. . . وَحَمْلُهُ وَفِصْلُهُ ثَلَاثُونَ شَهْرًا . . .» (١٥:٤٦)

which calculates the period for both the bearing and the weaning, and a referential statement such as ". . . Mothers are to suckle their children for two complete years, for whoever so desires to complete suckling . . ." (2:233)

«وَالْوَالِدَاتُ يُرْضِعْنَ أَوْلَادَهُنَّ حَوْلَيْنِ كَامِلَيْنِ لِمَنْ أَرَادَ أَنْ يُتِمَّ الرَّضَاعَةَ . . .» (٢٣٣:٢)

which calculates only the period of weaning. However, through the process of interpretation it may be concluded that the minimum period for bearing is six months.

Also a distinction should be drawn between a reference to a general address such as "O you Prophet, when you divorce women, divorce them after their period, and count the period . . ." (65:1)

«يَا أَيُّهَا النَّبِيُّ إِنَّا طَلَقْتُمُ النِّسَاءَ فَطَلِّقُوهُنَّ لِعَدَّتِهِنَّ وَأَحْصُوا الْعِدَّةَ . . .» (١:٦٥)

which is addressed to all Muslims through the Prophet, and a reference to a particular address such as "O you Prophet, why do you prohibit that which God has made lawful to you, seeking the contentment of your wives" (66:1)

«يَا أَيُّهَا النَّبِيُّ لِمَ تُحَرِّمُ مَا أَحَلَّ اللَّهُ لَكَ تَبْتَغِي مَرْضَاتَ أَزْوَاجِكَ» (١:٦٦)

which is addressed only in time to the Prophet.

Thus to interpret knowledge-based data clearly, distinctions must be drawn within the different states of the networks. This in turn requires introducing more flexible networks to deal with a greater variety of data structures; these are called Frame Models. The idea of the Frame Model (FMs) is a structure that describes a particular concept by listing elements of importance in the particular context, and provides information that could be relevant to that concept.²³ For instance, with reference to the Qur'anic data, the frame *al-nikâh* النكاح (marriage) describes the conditions, viz, *'adad al-ṭalqât* عدد الطلاقات (times of divorce), *al-'iddah* العدة (waiting period); the participants, viz, *al-zawj* الزوج (husband), *al-zawjah* الزوجة (wife), *al-waliyy* الولى (wife's representative), *al-shuhûd* الشهود (witnesses); the activities, viz, *al-ṣadâq* الصداق (dowry), *al-'aqd* العقد (contract); and any other special related data that could be attached to the marriage concept. In that sense, the frame *al-nikâh* النكاح will assume the role of the head concept instead of the verb, as would happen in the case grammar of Fillmore. Later the frame will be related to each of the other frames, through different forms, to constitute conceptual frame networks. This means that the frame *al-nikâh* النكاح will be connected with the frame *al-ṭalâq* الطلاق, the frame *al-'iddah* العدة and other frames where concepts have assumed playing the role of the head frames. Unfortunately, because information describing particular events and situations is not always available, many slot positions will be filled only when the corresponding information becomes available. For instance, the absence of the word *nikâh* نكاح in the verse

²³ Minsky, M. (1975), *A Framework for Representing Knowledge*, in: *The Psychology of Computer Vision*, edited by P. Winston, New York, pp.211-277.

"Prohibited to you are your mother, and your daughters, and your sisters,..." (4:23)

«حُرِّمَتْ عَلَيْكُمْ أُمَّهَاتُكُمْ وَبَنَاتُكُمْ وَأَخَوَاتُكُمْ
(٢٣:٤) «...»

will result in this verse not being related to the frame *al-nikah* النكاح and hence it will not be linked in the network with the marriage conditions for persons who are forbidden to be married. Similarly, this can happen in other verses wherein instead of the words fed in the data their synonyms are mentioned, such as the existence of the word *al-ajr* الأجر (dowry) in the Qur'an to referring to *al-ṣadâq* الصداق . This also necessitates a distinction of the homographs, since *al-ajr* الأجر is used in the Qur'an to represent a meaning such as salary or deeds. Specific problems may also arise in deciding, for example, whether a given piece of information should fill a slot in an existing frame, or should be represented by a separate frame, or a subframe of another frame.

We may, therefore, conclude that human experts are of limited help in constructing an extended knowledge-based analysis that reflects the richness of the human background and the metaphor of the natural language notion as amplified in the Qur'anic style. The Qur'an functions in a complex world, undisturbed by the blindness and limited intelligence of a man-made machine. In that sense, deep knowledge cannot be transferred to an automatic system. The reason is the important fact that any statement, whatever its simplicity, should be considered in its context as well as against the background of the time of communication. However, the limits of the rules that express the natural language can successfully be transferred to a mathematical formula and hence to a machine, but it will always fail to reflect the metaphor inherent in the deep structure of the statement. This view may be supported by three kinds of philosophical evidences. First, what the computer in principle can/cannot do: in principle it is impossible to design an artificial system which also possesses self-consciousness. A self-conscious system understands what it is doing and

does not simply react to meaningless rules²⁴. Secondly, parallelism/non-parallelism between human thinking and computer ability: the systems which simulate human thinkers would have to be equipped with an enormous amount of knowledge in order to cope with the specific human knowledge that people actually know and use.²⁵ Thirdly, when term and subject indexing are performed manually by trained subject experts, the terms and phrases usually require an intellectual effort which is sufficient to permit reasonably unambiguous interpretations. At present all automatic text-generation systems are based on extracting relevant parts from a stored knowledge-based data, and the problems that have been dealt with in the above section in the area of intelligent systems thus remain open questions.

4.3. Automatic Indexing

Thus far the analysis described above has not involved indexing. The entire text of the Qur'an was stored in machine readable form and was analyzed in its full-text form. However, indexing a text involves a selection of a set of terms from the entire document that represent implicitly the subject matter of the document. In many cases indexing is still done manually, and this is why the documentary system shows a certain amount of inconsistency (i.e. judgements regarding relevance influence manual indexing) in the quality of the service offered. However, for the purpose of this study, this section will be limited only to the automatic generation of the index language of single descriptors such as the adjective, noun, adverb type and automatic phrase generation such as the noun-noun, noun-adjective type. The fundamental rationale used for indexing the terms automatically has been similar in all experiments, though the theoretical approaches differ slightly among themselves. The sound foundation of this method is that the content of a document is specifiable for retrieval purposes by

²⁴ Searle, J. R. (1980), *Minds, Brains, and Programs*, *The Behavioural and Brain Science*, 3, pp.417-424.

²⁵ Warn, Y. (1989), *Cognitive Aspects of Computer Supported Tasks*, New York, p.186.

a word list, by eliminating the function words (pronouns, articles, conjunctions, etc.) that are characterized by high frequency of occurrences in the text, provided that the frequency of occurrences of the remaining words is likely to indicate the subject matter of that text²⁶. The earliest proposals for automatic indexing, which were made by Luhn and Baxendale, will be referred to as the statistical approach²⁷. The techniques suggested by Luhn and followed by Baxendale are: the significance of a word is to be a function of its frequency within the documentation in such a way that common words (pronouns, prepositions, articles, conjunctive adverbs, copula, auxiliary verbs, and quantitative adjectives) and least frequency words are not to be considered significant; only words lying in the frequency range above least frequent are to be considered²⁸. However, testing Luhn's and Baxendale's techniques on the following Qur'anic verses will highlight the validity of such an assumption for the Qur'anic text. Take, for example, the following verses:

"Say: 'I take refuge with the Lord of the creation, from the evil of what He has created, and from the evil of the complete darkness when it enshrouds, and from the evil of those (women) who inspire complexities, and from the evil of an envier when he envies.'" (113:1-5)

«قُلْ أَعُوذُ بِرَبِّ الْفَلَقِ، مِنْ شَرِّ مَا خَلَقَ، وَمِنْ شَرِّ غَاسِقٍ إِذَا وَقَبَ، وَمِنْ شَرِّ النَّفَّاثَاتِ فِي الْعُقَدِ، وَمِنْ شَرِّ حَاسِدٍ إِذَا حَسَدَ» (١١٣:١-٥)

Applying Luhn's and Baxendale's steps to the above verses, first all the common words, which are *أعوذ، ب، ال، من، ما، و، في، إنا* and *قل* have to be eliminated. Secondly, the remaining text words are stored in alphabetical order and the frequency of each is recorded. This is considered in the following table:

²⁶ Lancaster (1972), *op.cit.* p.153.

²⁷ Luhn's attempt was actually directed towards creating an automatic abstract, but the principle used by him was almost the same as for those used in automatic indexing. Luhn, H. P. (1958), *The Automatic Creation of Literature Abstracts*, IBM Journal Res. Dev.2, 2, pp.159-165. See also Baxendale, P. B. (1958), *Machine-Made Index for Technical Literature-An Experiment*. IBM Journal Res. Dev.2, 4, pp.354-361.

²⁸ Luhn calculated the significant factor S_i by squaring the number p_i of significant words in the cluster i and dividing this square by the total number q_i of words in cluster i : $S_i = p_i^2/q_i$. On the other hand, Baxendale says that n (the number chosen to yield an index with the desired number of entries) should be equal to 0.5 per cent of the number of words in the document.

word occurrence		frequency
<i>hasad, hâsid</i>	حسد، حاسد	(envier, envies) 2
<i>khalaq</i>	خلق	(created) 1
<i>rabb</i>	رب	(Lord) 1
<i>sharr</i>	شر	(evil) 4
<i>'uqad</i>	عقد	(complexities) 1
<i>ghâsiq</i>	غاسق	(darkness) 1
<i>falaq</i>	فلق	(creation) 1
<i>naffâthhât</i>	نفثت	(inspire) 1
<i>waqab</i>	وقب	(enshrouds) 1

Thirdly, the most frequently occurring words are selected to act as index terms for the document. However, application of Luhn's significant factor to the above frequency numbers identifies the word *sharr* شر (evil) as the index term for these verses (Baxendale's criterion is less helpful here because it is mainly based on larger documents). Finally, the selected word is stored with the document identification to represent its content and to provide a surrogate that can be searched in response to a subject request.

Another experiment similar in principle but different in approach to Luhn's and Baxendale's experiments is that of Oswald²⁹. Oswald's experiment in automatic indexing differs from Luhn's and Baxendale's experiments in that it employs juxtaposition of significant words as the basic unit to automatically generate indexes to include groups of words as well as single words. So he combines the notion of significance as a function of word frequency and the notion of significance as a function of word groupings. In principle, the strategy of Oswald is that, by excluding all the words whose function is essentially syntactic (articles, prepositions, conjunctions, etc.) along with qualifiers of little semantic importance (good, very, etc.), only words that are significant in the document are retained. The frequency of the retained words is counted, including every juxtaposition of two or more words which forms a

²⁹ Oswald, V. A., Jr. *et al* (1959), *Automatic Indexing and Abstracting of the Contents of Documents*. RADC-TR-59-208, prepared for the Rome Air Development Center, U.S. Air Force, 31, pp.5-34, 59-133.

significant word group. Finally, words with frequency occurrence that exceed a certain threshold will be exhibited as a phrase head. However, with the use of phrase heads and co-occurrences of remaining words in the verse, a variety of two-word phrases will be formed. To illustrate these criteria, the technique will be examined in relation to the following Qur'anic verses:

"When the earth quakes with a mighty quaking, and the earth casts forth its burdens, and man says, 'What ails her?' On that day, she will make known her tidings, that your Lord has revealed to her. On that day, people will issue forth in concourses to behold their deeds. So, whoever has done an atom's weight of good, will behold it. And whoever has done an atom's weight of evil, will behold it." (99:1-8)

«إِنَّا زُلْزَلْتِ الْأَرْضَ زَلْزَالَهَا، وَأَخْرَجَتِ الْأَرْضُ
أَثْقَالَهَا، وَقَالَ الْإِنْسَانُ مَا لَهَا، يَوْمَئِذٍ تُحَدِّثُ
أَخْبَارَهَا، بِأَنَّ رَبَّكَ أَوْحَىٰ لَهَا، يَوْمَئِذٍ يُصْدَرُ
النَّاسُ أَشْتَاتًا لِّيُرَوْا أَعْمَالَهُمْ، فَمَنْ يَعْمَلْ مِثْقَالَ
نَرَّةٍ خَيْرًا يَرَهُ، وَمَنْ يَعْمَلْ مِثْقَالَ نَرَّةٍ شَرًّا يَرَهُ»
(٨-١:٩٩)

Applying Oswalds' steps to the above verses, first all the common words which are *أنا*, *فمن*, *أن*, *ما*, *وال*, *ت* and *إنا* have to be eliminated. The remaining text words are stored in alphabetical order and the frequency of each is recorded.

This is set out in the following table:

word occurrence	frequency
<i>athqâl[ahâ]</i>	أثقالها (burdens[her]) 1
<i>akhbâr[ahâ]</i>	أخبارها (tidings[her]) 1
<i>ard</i>	أرض (earth) 2
<i>a'mâl[ahum]</i>	أعمالهم (deeds[their]) 1
<i>insân</i>	إنسان (man) 1
<i>khayr</i>	خير (good deeds) 1
<i>rab[ak]</i>	ربك (Lord[your]) 1
<i>zulilat, zilzâl[ahâ]</i>	زلزلت، زلزالها (quakes, quaking[her]) 2
<i>sharr</i>	شر (evil deeds) 1
<i>mithqâl dharrah</i>	مِثْقَال نَرَّة (an atom's weight) 2
<i>nâs</i>	ناس (people) 1
<i>yawma'izin</i>	يومئذ (in that day) 2

According to Oswald's assumption, the index headings that are to be selected based on the above frequencies will be *mithqâl dharrah* مِثْقَال نَرَّة as it has the highest frequency as well as being the index phrase.

It seems that the characterization of the term frequency is of little use for the purpose of actual Qur'anic indexing, for six reasons. First, it should be noted that any frequency measure breaks down when dealing with very low frequencies. All methods are assumed to select any word which meets the threshold frequency, but this results in several significant terms being missed. Secondly, the frequency approach attempts to use no more than the occurrences of word spellings and their relative distances in the document environment, therefore words, regardless of their spelling, could be homographic (such as *yawma'izin* يومئذ, which refers to the day of Judgement), synonyms (such as *al-insân* الإنسان and *al-nâs* الناس which both refer to mankind but are distinguished as two different terms) or connected pronouns (such as *hâ* ها which refers to the earth). This certainly eliminates the possibilities of accurate term statistics and in many cases it generates terms which are too specific or too broad to be useful for indexing purposes. Thirdly, the occurrence of the high frequency terms may attract other words that may not be ideal index terms. Fourthly, the elimination of inseparable function words or connected pronouns can hardly be recognized by the computer program. Fifthly, the process, which is dependent only on term frequencies and term co-occurrences, will in the absence of the syntactic criteria generate a meaningless combination and valueless phrase for retrieval purposes. In other words, the probability of having a meaningful useful phrase that expresses the subject matter adequately is very limited. This, however, again calls for a real linguistic sentence analysis which has been discussed above. Sixthly, the theory when examined in relation to the selected verses of the Qur'an requires their manual isolation to enable the related verses to share a single concept. Further, the specificity of the index terms and the cross-references provided between terms present a complexity that cannot be solved without the contribution of human labour. Therefore, in terms of cost-effectiveness, automatic phrase-formation is not worth the effort.

However, as a result of this limitation (i.e. computer's inability to act as human intelligence), the other alternative is to use the computer as a tool. This means that the users call for knowledge which they think is required in a particular situation, and retrieve it from the database which should store the information exactly as it will be requested not as free-text searching. This in turn means that the database for the purpose of its interaction with the user must be stored in a machine to enable it to be retrieved by conventional searching devices.

4.4. Conventional Searching Devices

In automatic text processing, the computer reduces the information from the sequences of letters and spaces into machine readable form and then conducts special programs to process sentences through its database. A database is a complex pattern of programs and data, used for storing and retrieving large amounts of information. However, for the purpose of the present study, database will be defined as a collection of data which can be accessed only at the active request of the user. As a first step to establish a Qur'anic database system, the entire text of the Qur'an has to be fed into the internal storage memory of the computer. The second step is to recognize and identify individual text words. The computer program reads the word requested and carries out the matching process and identifies the word (or word part).

One important searching consideration that should be taken into account is whether the Qur'anic text will be compiled in the database by its orthographic script or fed by the modern Arabic writing system. . After the Prophet Muḥammad's death the Qur'an in its written form was compiled in strict observance of the autography of the 'Uthmanic copy. Nowadays, in its printed form, the Qur'an, compared to the usual Arabic writing system, shows many peculiarities. The following are examples of these peculiarities:

1. The letter *hamzah* on *wâw* و as in الرؤوف is replaced by a separated *hamzah* ء thus الرؤوف .
2. The end case of the letter *tâ' marbûṭah* ة as in امرأة is replaced by *tâ' maftûḥah* ت thus امرأت .
3. The two letters *wâw alif* وا which present the plural pronoun as attached to the verb as in باءوا are replaced by the letter *wâw* و thus باءو .
4. The double letters *lâm* لل as in الليل are condensed to a single letter ل thus الليل .
5. The double letters *yâ'* يي as in النبيين is condensed to a single letter ي thus النبيين .
6. The letter *ṣâd* ص in some cases such as بصطة is replaced by the letter *sîn* س thus بسطة .
7. The letter *alif* ا in some cases such as الصلاة is replaced by the letter *wâw* و thus الصلوة .
8. The letter *alif* ا is often written on top of a letter as in الملكة instead of after it thus الملكة .

Software compilers do in fact consider these two different approaches towards putting the Qur'anic text into the computer as a database. Either it has been compiled with its peculiarities from 'Uthmanic copy, an approach which is taken by al-'Alamiyyah software compilers, or is compiled according to the modern Arabic writing system, the approach which is adopted by *Salsabeel* software compilers. The two approaches have their advantages and disadvantages, and both are linked by the searching facility, time consumption and cost-effectiveness. With regard to the 'Uthmanic copy, which is the natural form in the form of the Qur'an printed today and which fully satisfies the

Muslim user, the user has to search through the Qur'anic peculiarities, which is a difficult process. Whereas if the Qur'an has been transcribed into the database through the modern Arabic writing system, which does not fully satisfy the Muslim user, the searching process will follow the modern Arabic writing system, which is an easy process.

To solve this problem the searching system devices must be considered, as their capability is more important than user satisfaction. In general, any free-text searching process is based on a comparison of the individual characters of the entry for the word with the words in the stored texts. For instance, asking the computer to search for the word CLASSIFYING, the computer will locate all occurrences of the words CLASSIFYING, but not CLASSIFICATION. This is due to the fact, that all text searching systems suffer from the inflexibility inherent in exact character-matching. One way of overcoming this limitation, which is provided by all computer searching devices, is the truncation process: the process for searching the word by its stem. A convenient form of truncation approach is through the use of the strings "*" which are used to denote an unlimited number of arbitrary characters³⁰. However, searching for the complete words that share with the word CLASSIFY, the same stem requires the user to truncate the stem to CLASSIF. So the process will be operated as CLASSIF*, and the computer will locate CLASSIFYING, CLASSIFICATION, CLASSIFIER, and CLASSIFIED. Forward truncation can also be used as well as back truncation, for example *CLASSIF*, which will locate, in addition to the above, RECLASSIFICATION. The truncation process is a very convenient device in computer searching, but it should be used with great care in the process of reducing the word to its stem. For instance, reducing the word CLASSIFICATION into CLASS instead of CLASSIF will result in matching other unrequired words, such as CLASSROOM, CLASSICAL, CLASSICISM, etc. Moreover,

³⁰ There are other symbols to be used to indicate truncation such as # and ?. This depends implicitly on the program being used.

applying the truncation process on a simple word like **KBR* كبر *, (ignoring the vowel signs) will match *MTKBR* متكبر , *MSTKBR* مستكبر and, *KBRYA'* كبرياء . An important advantage of truncation in Arabic is that a great number of words in the text can be retrieved, though one great disadvantage of the truncation process, in its application to the Arabic language, is that truncation serves as a means of matching words that do not suffer from internal disruption such as *MTKBR* متكبر and *KBRYA'* كبرياء but which do not match those which do suffer from internal disruption such as *ISTKBAR* استكبار . The reason for this is that infixes in the Arabic language disrupt the sequence of the radicals of the word form, and reduce the efficiency of the truncation device which is devised to retrieve the various forms of prefixes and suffixes in English words. As a matter of fact, the real difficulty of Arabic lies in its richness not only in prefixes and suffixes but in infixes as well. This internal inflection of Arabic words is the main reason for the low efficiency of the Arabic language in its interaction with self-determined computer retrieval systems.

For practical reasons, this fact has been admitted by al-'Alamiyyah software compilers who state that string matching is inoperable in the case of the Arabic language because of the inflectional nature of most of its vocabularies³¹. However, al-'Alamiyyah software provides for searching by natural forms – either with affix or without – as well as by roots.³² Indeed, searching through the natural form of the word has disadvantages, for example, in putting too great a burden on the searchers as they have to guess at the matching term in the machine format³³, while searching by root has the disadvantage of matching unrequired words, due to the absence of the vowel signs. For example, searching through the Qur'anic database for an unvocalized three-radical root

³¹ Ali, Nabil (1989), *al-fahm al-autumâtî lil-'Arabiyyah al-maktûbah ghayr al-mshkûlah*, Proceeding of Second Conference on Arabic Computational Linguistics, Kuwait, pp.462-470. [Arabic text]

³² *Ibid.*,

³³ This disadvantage is clearly also found in *Salsabeel* software which uses only whole word matching system.

such as *MLK* ملك results in matching five different words viz, *MILK* مَيْلَك (landed property), *MULK* مُلْك (supreme authority), *MALIK* مَلِك (king), *MALAK* مَلَك (angel), and *MALAKA* مَلَأَ (lay hands). This means that if the searcher is looking for only one of these words in particular in the database, he will receive all these words on each occasion of searching. As a matter of fact, although the use of the vowel signs in Arabic print seems to be optional and only necessary in cases of possible misunderstanding of the word, the vowel signs should be used without exception in computer free-text searching. This is extremely important in the case of the Qur'an since vowel signs are an essential part of it. This fact has been expressed by Bathurst thus: Arabic language in normal print is required to be interpreted rather than read. This is due to the absence of the short vowels and the existence of the prefixed and infix letters in Arabic words³⁴.

Thus far it has been assumed that the search is for an individual word, but in practice the searchers would normally think of more than one word to describe the subject in which they are interested. The conventional way for the computer to handle synonym words is through the use of logical operators, known as Boolean operators, AND, OR, and NOT. For instance, if the searcher is looking for the verses including *insân* إنسان (man), the search should be compiled in the form:

**ins* إنس * AND **nâs* ناس *

However, for searching all the words concerning *insân* إنسان this formula should be extended to the form:

(**ins* إنس * AND **nâs* ناس *) NOT (*mustânisîn* مستانسين OR *tasta'nis* تستانس)

Searching by means of the Boolean strategy meets with success only if the specified item is matched exactly by the requested one. Obviously, this is related to the degree to which the searcher is able to think of all possible words

³⁴ Bathurst, R. D. (1971), *Automatic Alphabetization of Arabic Words: A Problem Graphic Morphology and Combinational Logic*, in: *The Computer in Literary and Linguistic Research*, edited by Wisbey, R., Cambridge, pp.185-190.

that might represent a single concept, a fact that puts an inefficient and impractical burden on the searcher. The Boolean strategy of searching is used by the ICC's *Qur'anic Database*³⁵ and these limitations are noted.

From the above it is clear that the major problem actually lies in the relevant information that is expected to be found by direct means and the real available data in the database. However, the basic failures of all the approaches discussed earlier should be considered in terms of the strengths and weaknesses of the man-machine dialogue. In general the searching techniques above could be provided for three forms of dialogue: Form-Fill-In dialogue, Question-Answer dialogue, and Menu-Selection dialogue. In Form-Fill-In dialogue style the computer presents the user with blank captions on the display that require the user to fill them in. The advantages of this style are that it is quick to use and easy to learn. The disadvantage is that it gives opportunity for typing mistakes. Hammond and his associates found that about one-third of the errors in computer systems were the result of mistyping, and half of these were due to using the correct key, with the wrong shift³⁶. In the question-answer dialogue style the computer asks a series of questions followed by a sequence of responses given by the user. This leads in turn either to further questions or to the data requested. The advantages of this style are that it is easy to use, easy to learn, and easy to program. The disadvantages are that it is inflexible once structured³⁷ and experience shows that it has a negative psychological effect on the user since it is the computer which is raising the questions. Also both of the above dialogues still have to cope with the problems that have resulted from truncation, root searching, and Boolean operators. In menu-selection dialogue, the computer provides a list of options and the user selects one of them by either pointing at it or keying the applicable code. This leads in turn either to further

³⁵ Islamic Computing Center, *op.cit.*

³⁶ Hammond, N., Long, J., Clark, I., Barnard, P. and Marton, J. (1980), *Documenting Human-Computer Mismatch in Interactive Systems*, Proceedings of the 9th International Symposium on Human Factors in Telecommunications, pp.17-24.

³⁷ Watts, R. A. (1984), *Introducing Interactive Computing*, Manchester, p.62.

menus or to the information required. Galitz states that menu screens are effective because they utilize the more powerful human capability of recognition rather than the weaker recall³⁸. Another advantage is that working with menus reminds the users of available options and information they may not be aware of or may have forgotten. However, the main disadvantages of menu selection are that they are slow to use in large systems, and that there is limited choice per menu.

Technically, Shneiderman identifies three basic kinds of menus that can be found on screens: single menu, a single menu confined to one screen; linear sequence menu, a series of choices passed on to two or more screens to complete and presenting one choice at time, and multipath menu which provides a path of choices through a tree structure of a network³⁹. Galitz offers the following seven types of single menus: (1) Binary choice, which presents a pair of choices (e.g. Y/N), (2) Multiple item which provides more than two choices, (3) Extended, a lengthy list of options which extends beyond one screen, (4) Pop-up, which applies through windowing technique, (5) Permanent, a permanently displayed menu on the screen, (6) Multiple selection, a list of alternative options allowing for more than one choice, and (7) Embedded, a selection from choices within the data itself⁴⁰.

Several studies have been conducted on multipath menu to find out how many items will be placed on one menu and how many levels it will include. Regarding the former, Lee and MacGregor show that four to eight choices per menu screen are best⁴¹, while Paap and Roske-Hofstrand have concluded that a menu containing up to sixty-four items, if it were organized into logical groups,

³⁸ Galitz, W. O. (1989), *Handbook of Screen Format Design*, Wellesley, Mass., p.177.

³⁹ Shneiderman, B. (1987), *Designing the User Interface: Strategies for Effective Human-Computer Interaction*, Reading, MA., pp.88-105.

⁴⁰ Galitz, *op.cit.*, p.179.

⁴¹ Lee, E. and MacGregor, J. (1985), *Minimizing User Search Time in Menu Retrieval Systems*, *Human Factors*, 27(2), pp.157-162.

could be suitable⁴². However, regarding the number of levels, a study by Dray and his associates found that one level was easiest to learn⁴³, but Kiger has concluded that a lower number of levels (2 to 3) and an intermediate number of choices (4 to 8) results in faster, more accurate performance as compared to fewer or greater numbers of levels and choices⁴⁴. Elsewhere, in a study conducted to compare the efficiency of selecting the items from the menu by number codes versus mnemonic codes, Perlman found that numbered codes were searched about twice as fast as lettered codes⁴⁵. Whereas Shinar and Stern have demonstrated that mnemonically coded menus can be searched significantly faster than menus with numeric codes⁴⁶.

Nevertheless, the Menu-Selection dialogue is very adequate for use on the Arabic language. The reason for choosing the menu selection as a screen display in this service was based on six important advantages. First, the menu selection eliminates the problems caused by the nature of Arabic language in the sense that the system saves the searcher from retrieving the request through truncation, stem root, or Boolean algebra, which have their own defects. Secondly, the menu selection reduces the number of keystrokes and hence the typing mistakes. Thirdly, the menu selection gives the user a positive psychological framework since it is he who controls the system. Fourthly, the menu selection takes the load off the searcher's brain, that arises from having to guess the correct term that matches the computer's memory. Fifthly, the menu selection suits all types of user, the naive as well as the expert. Sixthly, the most important fact which must be dealt with in a final discussion is that it

⁴² Paap, K. R. and Roske-Hofstrand, R.J. (1986), *The Optimal Number of Menu Options per Panel*, *Human Factors*, 28(4), pp.377-385.

⁴³ Dray, S. M., Ogeden, W. G., and Vestewig, R. E. (1981), *Measuring Performance with a Menu Selection Human-Computer Interface*, *Proceedings of the Human Factors Society - 25th Annual Meetings*, Santa Monica, CA., pp.746-748.

⁴⁴ Kiger, J. I. (1984), *The Depth/Breadth Tradeoff in the Design of Menu Driven User Interfaces*, *International Journal of Man-Machine Studies*, 20, pp.201-213.

⁴⁵ Perlman, G. (1984), *Making the Right Choices with Menus*, in: *Human Computer Interaction - Interact '84/B*, edited by Shackel, North Holland, pp.317-321.

⁴⁶ Shinar, D. and Stern, H. I. (1987), *Alternative Optional Selection Models in Menu-Driven Computer Programs*, *Human Factors*, 29(4), pp.453-459.

covers the unfortunate present situation of lack of standardization among the computer keyboard manufactures and Arabic software compilers. To discuss this problem in detail, a quick look on computer information exchange is necessary.

First of all, to use a computer for the exchange of information requires that communication takes place through the activity of programming languages. At the most basic level of programming languages, the instructions are given to a computer by the use of machine codes. These codes are a series of binary numbers programmed in combinations with 0s and 1s. By these codes the machine language can be directly interpreted through the inner circuit of the computer without translation. However, the circuit of each model of computer differs from that of all others, and each computer has to have its unique machine language. Consequently, a machine language program written for one computer cannot be processed by another unless the computers are identical in their circuit. Even the machine languages of two different models of computers in the same computer family are not compatible. Computer hardware has essentially been designed for handling languages of the Indo-European family (mainly English). For the English language the problem of compatibility is solved by adopting the rules for the standard code, known as ASCII, see Figure 4-5, while for inflectional languages, like Arabic, the problem has not yet been solved.

In principle, Arabic has no fundamental difficulty in dealing with the machine codes, where each letter has to be presented with a sequence of 0s and 1s numerals in order to be retrieved and displayed. However, discussion of the problems of compatibility between different Arabization systems, as well as important works and researches on standardization of Arabic character set and the different type codes associated with it have been carried out in different places of the Arab world. The accumulation of these efforts led to the ASMO

ASCII Character	Binary
0	0011 0000
1	0011 0001
2	0011 0010
3	0011 0011
4	0011 0100
5	0011 0101
6	0011 0110
7	0011 0111
8	0011 1000
9	0011 1001
A	0100 0001
B	0100 0010
C	0100 0011
D	0100 0100
E	0100 0101
F	0100 0110
G	0100 0111
H	0100 1000
I	0100 1001
J	0100 1010
K	0100 1011
L	0100 1100
M	0100 1101
N	0100 1110
O	0100 1111
P	0101 0000
Q	0101 0001
R	0101 0010
S	0101 0011
T	0101 0100
U	0101 0101
V	0101 0110
W	0101 0111
X	0101 1000
Y	0101 1001
Z	0101 1010

Figure 4-5: the American Standard Code for Information Exchange (ASCII)

standard, issued by the *Arab Standardization and Metrological Organization*. The latter have issued a character set standard referred to as ASMO 449 assigned for 7-bits (Figure 4-6) and this has been adopted by the *International Standard Organization* (ISO) under the serial number 9036 (Figure 4-7). Unfortunately, the best well-known manufacturers such as IBM-PC, APPLE IIe, and MACINTOSH PLUS, who offer an Arabic keyboard facility, use this character set with major changes (Figure 4-8). But for the user who is working on a single software program, the retrieval of information will certainly be very difficult since the standardization of position of the characters on the keyboards is not unified. More unfortunately, software compilers themselves are not committed to the use of either ASMO or ISO codes, and so they set for their programs whatever suits the software. Take, for example, two well-known Qur'anic software programs, *Salsabeel*⁴⁷ and *al-Qur'ân al-karîm*⁴⁸ (Figure 4-9); the location of the characters as well as the vowel signs is not unified. As a result, arbitrary software codes, with arbitrary keyboard characters location, give the searcher a difficult time in identifying a character; even if it is already found. Unless there are joint efforts to solve this problem, it will have an effect on the future stability of Arabic computers. The choice therefore for this study is to use the menu-selection as it is the only way to avoid the need to retrieve information through unstandardized keyboard codes.

⁴⁷ Applied Microsystem Technology, *op.cit.*

⁴⁸ Al-'Alamiyyah, *op.cit.*

DECIMAL		128	144	160	176	192	208	224	240
HEX		80	90	A0	B0	C0	D0	E0	F0
0	00	Ç	SAB	ASP	.	@	ذ		
1	01	ü	SLB	!	١	ء	ر	ف	
2	02	é		"	٢	آ	ز	ق	
3	03	â	ô	#	٣	أ	س	ك	
4	04	ä	ö	\$	٤	ؤ	ش	ل	
5	05	à	ò	%	٥	إ	ص	م	
6	06	â	û	&	٦	ئ	ض	ن	
7	07	ç	ù	'	٧	ا	ط	ط	
8	08	ê		)	٨	ب	ظ	و	
9	09	ë		(	٩	ة	ع	ى	
10	0A	è		*	:	ت	غ	ي	
11	0B	ï		+		ث]]	
12	0C	î			>	ج	\	:	
13	0D	ì		-	=	ح	[{	
14	0E	SAS	SAB		<	خ	^	~	
15	0F	SLS	f	/	؟	د	-		

Figure 4-6: the Arabic 7-bit coded character set for information exchange (ASMO-449+)

				b7	0	0	0	0	1	1	1	1
				b6	0	0	1	1	0	0	1	1
				b5	0	1	0	1	0	1	0	1
					0	1	2	3	4	5	6	7
b4	b3	b2	b1									
0	0	0	0	0	NUL	DLE	SP	0	@	ز	—	/
0	0	0	1	1	SOH	DC1	!	1	.	ر	ف	ء
0	0	1	0	2	STX	DC2	"	2	ا	ز	ق	ه
0	0	1	1	3	ETX	DC3	#	3	أ	ع	ك	
0	1	0	0	4	EOT	DC4		4	و	ش	ل	
0	1	0	1	5	ENQ	NAK	%	5	ا	ك	م	
0	1	1	0	6	ACK	SYN	&	6	ئ	ف	ن	
0	1	1	1	7	BEL	ETB	'	7	ا	ط	ط	
1	0	0	0	8	BS	CAN	)	8	ب	ظ	و	
1	0	0	1	9	HT	EM	(	9	ة	ع	ى	
1	0	1	0	10	LF	SUB	*	:	ت	غ	ى	
1	0	1	1	11	VT	ESC	+	;	ث]	'	}
1	1	0	0	12	FF	IS4		>	ج	\	"	|
1	1	0	1	13	CR	IS3	-	=	ح	['	{
1	1	1	0	14	SO	IS2	.	<	خ	^	'	-
1	1	1	1	15	SI	IS1	/	؟	ر	—	'	DEL

Figure 4-7: the Arabic 7-bit coded character set for information exchange (ISO 9036)

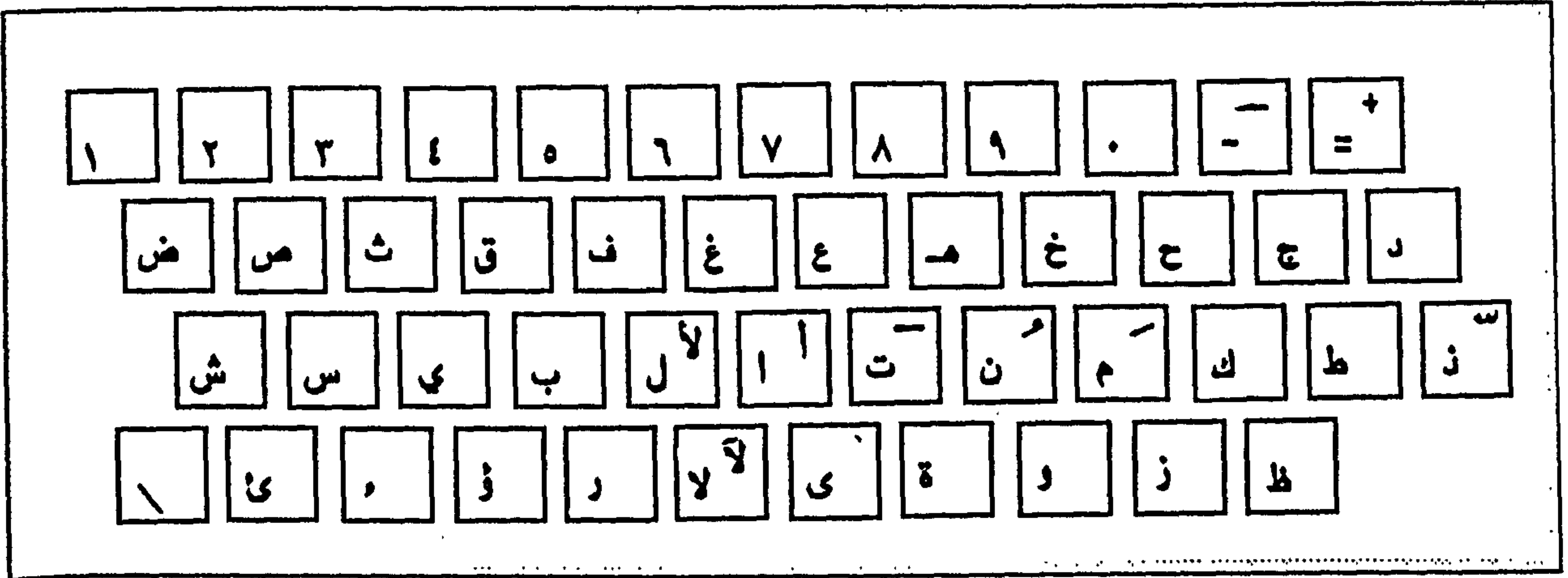


Figure 4-8a: the distribution of Arabic letters on IBM-PC keyboard.

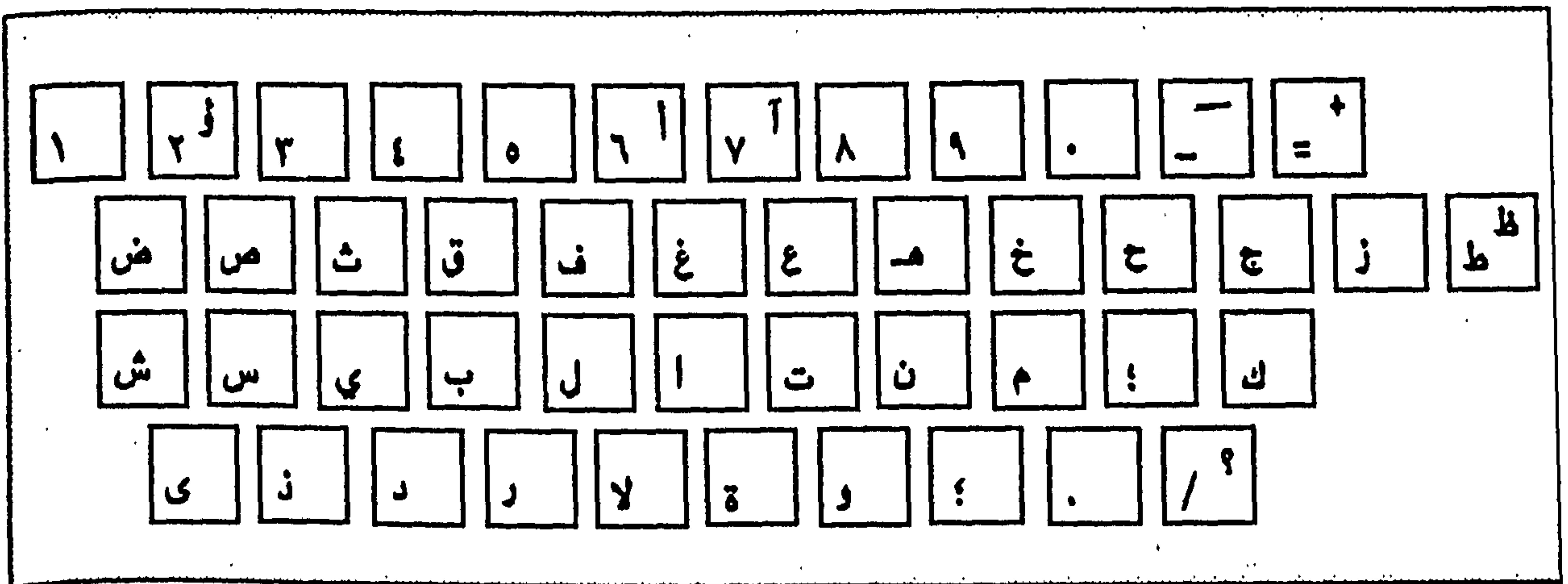


Figure 4-8b: the distribution of Arabic letters on APPLE IIe keyboard.

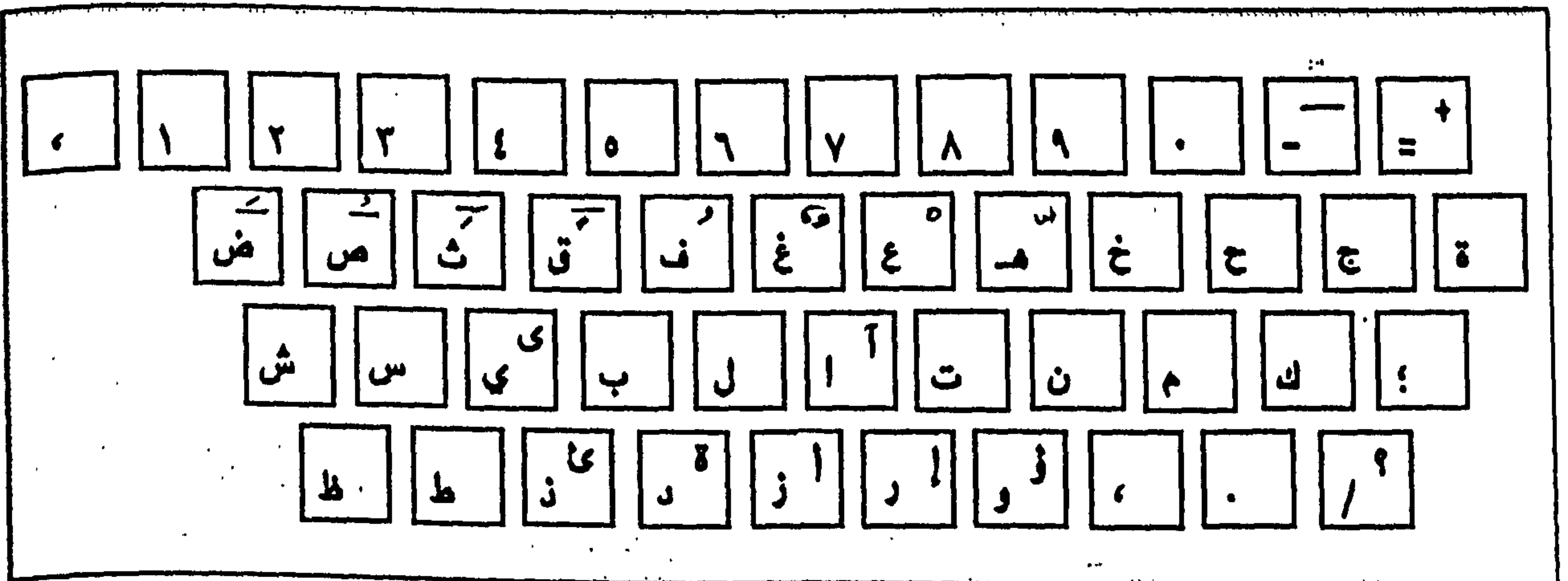


Figure 4-8c: the distribution of Arabic letters on MACINTOSH PLUS keyboard.

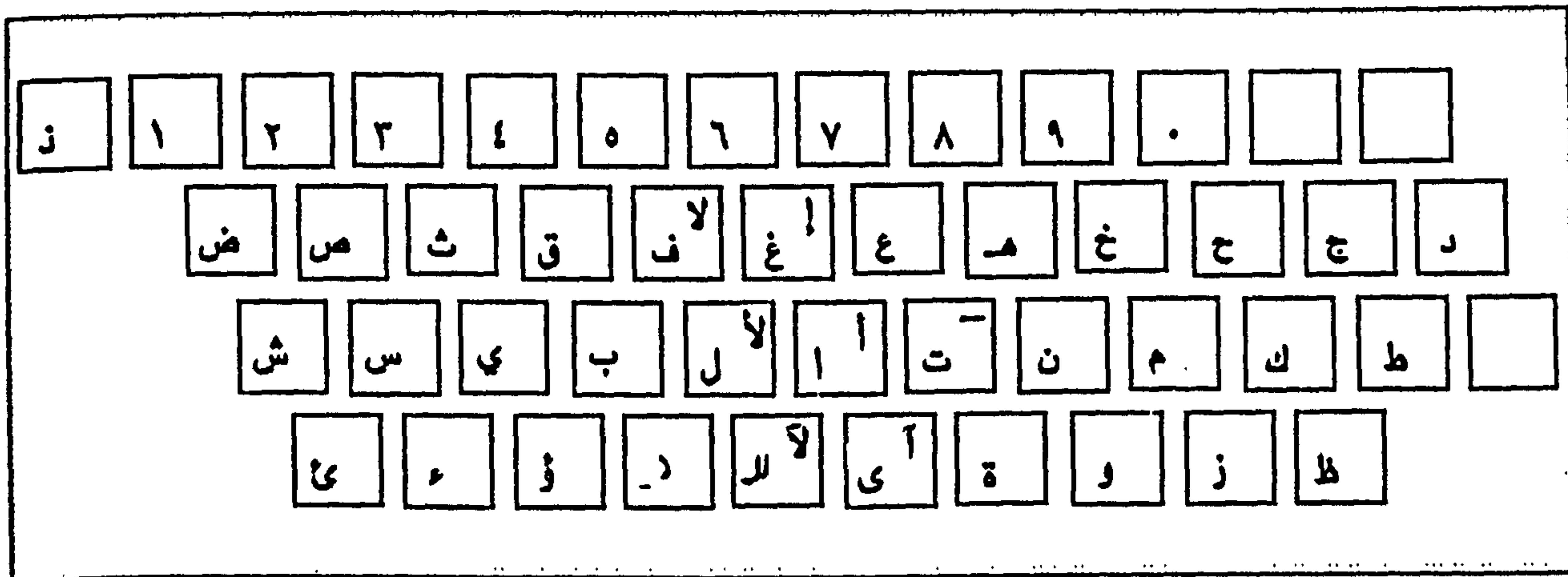


Figure 4-9a: the distribution of Arabic letters on the keyboard according to *Salsabeel* Qur'anic software.

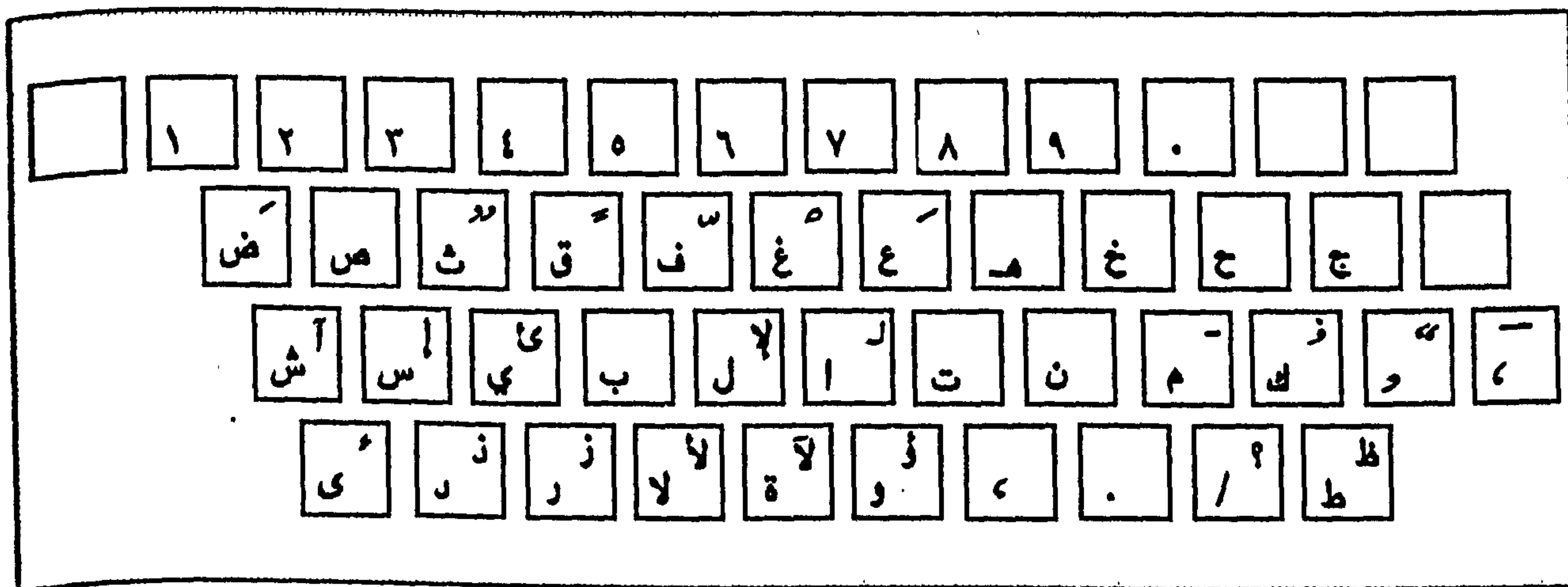


Figure 4-9b: the distribution of Arabic letters on the keyboard according to *al-Qur'an al-karim* software.

4.5. Conclusion

The ideas presented in this chapter suggest that it is impossible for present-day-machine-free-text searching to replace the human brain. Natural language theories that have been used to analyze and generate Arabic texts from a database are complex and the techniques for designing them are not yet adequately developed. Many researchers are working on various aspects of these theories to develop more complete grammars, lexicons, and knowledge representation schemes and to improve efficiency by finding better searching strategies, though their success is so far limited in scope.

CHAPTER FIVE

THE PLAN, CONSTRUCTION AND DESIGN OF THE QUR'ANIC RETRIEVAL SYSTEM

5.1. Overview

In the previous chapters the problems involved in transferring the Qur'anic text into a form which allows vocabulary control manual searching and free-text automatic searching have been discussed, with the solutions suggested and recommended in various other systems. The success of a retrieval system depends on well-constructed instructions and rules. The moral is that careful thought and preparation at the outset is necessary for a successful system. This involves a process of identifying the right subjects from the entire body of the scripture, and selecting and organizing the indexing rules. Next, it is necessary to introduce the terms and their interrelationships which are to be displayed in a proper format to provide the users easy access. Finally, the major opportunity for enhancing the real effectiveness of the retrieval system lies in properly testing and evaluating its degree of success. The degree of success from the users' point of view is the ability of the system to retrieve the relevant information with minimum effort and maximum efficiency, while the degree of success from the point of view of the agency sponsoring the system is to reach the highest quality with a minimum cost.

This chapter presents guidelines for the design of the Qur'anic retrieval system. The guidelines presented in this chapter are derived directly from the recommendations and studies reviewed in earlier chapters. However, all the guidelines are listed in a structured manner to produce an activity to be considered in its own right, with examples in the required places. Systematic arrangements are provided in an attempt to assist the user in organizing the information which relevant to a particular design problem.

5.2. Management Aspects

5.2.1. Setting up the service

Establishing and operating any service requires certain resources. The most important and necessary of these are premises and equipment. Moreover, revenue is also needed to meet staff salaries and training, to purchase stationary, reference works and maintenance, and to publicize and promote the service.

A. Notification of intent

When an agency has decided to prepare a new retrieval system, notification of intent should be announced and published in an academic journal. The aim of this announcement, on the one hand, is to avoid duplication of the work of other agencies that have already started without notification. On the other hand, the aim is to unify the efforts of the agencies, since related fields can frequently serve as a useful starting point. However, the announcement should include the project plan, the area of knowledge to be covered and the time expected to be completed. For example:

The plan of the intended work, the contents, the layout and methods of construction is targeting a monolingual controlled retrieval system covering subjects that constitute Qur'anic concepts. It is limited in scope to those agencies that employ human labour to analyse the subject contents of the Qur'an and its related documents. The employment of automatic techniques is not in the core of this work, but will be used in a final stage.

B. Equipment

The information service will require references, which will reach many hundreds of volumes as the service grows. Large numbers of volumes will require some form of book shelving, metal or wooden, with stable ends or removable book-ends. Other essential equipment, that a service of this nature needs, includes two micro-computers with high capacity hard disk and high screen resolution suitable for database storage and other needs of the

information services, a heavy duty photocopier suitable for copying thick books with less need for maintenance coverage, and a filing cabinet with 32 drawers each with at least 1000 cards capacity.

5.2.2. Administration and organization

The administrator will be responsible for the recruitment and selection of suitably paid, or voluntary, staff to operate the service, ensuring that all staff receive initial and on-going training, assessing their performance and recommending appropriate action, arranging effective communication with them through regular meetings, staff bulletins, and providing advice and support to all of them. The administrator will also be responsible for establishing and maintaining an up-to-date and accurate information system to meet the needs of staff in the service, for continuing to monitor the use made of the service and for recommending any alterations to improve the service or to meet changing needs, for keeping adequate records on the use of the service, for handling correspondence, for maintaining an adequate supply of stationary and other items, for keeping financial records relating to the buying of the stationary and salaries, and for handling the complaints of the staff. Finally, the administrator will be responsible for developing links with local, regional, and national agencies and individuals whose work or knowledge might be of benefit to the service, representing the service on appropriate bodies, publicising and promoting the service through all appropriate channels, attending to local issues or shortcomings arising out of the work of the service, and preparing annual reports.

A. Staff characteristics and requirements

A bright, helpful and sympathetic person can more than make up for limited resources, so it pays to concentrate on getting the right one or ones. The right one, in this instance, may not necessarily be the person who is most qualified academically but the one most committed to the work. The former is not so

important at the early stage of the service. The important requirement is commitment to the aims of the information service and an approachable personality. If both professionalism and commitment have been found in the initial stage of the service, this will be the perfect match. The characteristics of the required staff are discussed below under each category of job:

(i) Readers

The sole task of readers will be to scan the original manuscript (the Qur'an) in proof (using the guided materials), picking up the final verses corresponding to the relative subjects, abstracting and commenting on them. Therefore, readers should be subject experts (e.g. college graduates with a major in the subject of the required service). They should have lively, fresh and sharp minds, the ability to read with understanding, and experience of searching literature and conveying knowledge of the language of the Qur'an, and of abstracting methodology, and should, moreover, have a reasonable vocabulary of the subject.

(ii) Indexers

The major task of the indexers will be to provide the retrieval system with vocabularies in connection with Qur'anic verses and subject matter. They should be experts of the subject and also familiar with the Qur'anic language. They should provide cross-references among index terms and co-ordinate scattered terms. They should, therefore, have the ability of selecting the right words, providing cross-references, arranging terms in the right order, and representing terms in a simple access display.

(iii) Checkers

The work of checkers is to check and correct the factual errors, omitted data, diverted facts, grammatical mistakes, inconsistencies, and spelling of the data. However, good checkers, in addition to having the qualifications of the readers,

must have the ability to recognize errors of commission and omission, and to write simple sentences.

(iv) Programmers

At some stage, acceptable programmers could be recruited by selecting persons of skill and knowledge. Most of the skills needed to perform the required activities already exist in a large section of the adult population. Working on assembly lines requires a person to perform tasks that are readily understandable within few minutes and relatively easy to carry out. Moreover, the manager does not have to worry too much about training such a person or directing the work all the time.

B. Training and requirements

Readers, indexers, and checkers are only humans, and therefore the relevant nature of personal judgement is very real. It can neither be ignored nor eliminated. Relevance is a very personal matter, and individuals who depend on their personal bank of information for locating concepts and creating ideas find gaps in their knowledge, such as, subject areas which have never been covered in the individual's work. There are, however, essentially four means for training readers, proof-checkers, and indexers to reduce the negative effect of the relevant nature. These are instruction manual, short courses, annual meetings and self teaching.

(i) Instruction manual

An instruction manual is an essential tool for the participants; it is a manual to help participants and to guide them with definitions of special symbols, data on nomenclature, terminology, and instructions on search strategy. However, the layout of the manual should accommodate: the references needed in the work, the format of the service cards and their functions, general instructions of how to prepare and style the abstract and the index, and special instructions of the rules adopted in the work, with examples.

(ii) Short courses

Courses should be designed to meet the needs of readers, proof-checkers and indexers involved in the service. These should include courses training how to read and understand the literature and the Qur'an and to derive relevant information. Training in librarianship is an extremely useful preparation. The most relevant university courses for such work are formal courses in abstracting and indexing. Workshops should accompany these courses to provide a maximum amount of instruction and practical experience in a short time. Short courses may last for few hours or a few days.

(iii) Annual meetings

Annual meetings for all the groups from different subject areas are important for exchanging developments, refreshing knowledge and sharing professional information. During the meetings, notes of experiences should be studied carefully and recommendations should be taken into consideration and, if possible, provided within the instruction manual or should be published separately.

(iv) Self-Teaching

Although reading and indexing are of general application, each subject has its own unique requirements. Self-teaching is the only way to cover the gaps both in subjects as well as in individuals. Old notes should be kept and compared with new ones, tracing the changes and indicating the reason for, and the time of, changes and, with the help of this information, efforts should be directed to improve the quality of the participants. Self-teaching should follow the instruction manual provided by the organization seeking the service.

5.2.3. Abstract forms and index cards

These are the second major tools after the instruction manual, and this is why they have been placed in a separate section. It is most likely that the information files will be contained in forms and cards. The most popular size for forms

being the usual A4 page-weight papers; these are the abstracting forms. However, the process of transferring the indexing terms is most suitable for operation on card size 5"X3", as it is commonly used in most offices and least expensive for cabinets.

A. Abstracting forms

The precise purpose of the forms is to identify the original document and to direct the readers to the exact position of the content (Figure 5-1). Basically it consists of the following:

(i) Form identification number

The identification number is a unique number that serves to identify the particular work with the service. The identification number is a combination of both letters and numerals. The letters refer to the initials of the readers' team work, while the numerals refer to the form number. For example:



(ii) Subject term

Searching for subject matter requires an initially suggested subject-term. The suggested subject-term is that usually found in the majority of the Qur'anic verses and/or promoted by the specialists. The subject-term should be run across the top of the form in order to allow the user to determine at a glance the nature of the target scanning subject. There will usually be one subject-term for each form in the user's system, with no preferred grammatical form (i.e. singular-plural) for the use of the subject-form. The general norm is that it should be available in the noun form.

File No. :		Subject-term :	
Relevant :		Partially relevant :	
Matter of doubt :			
Qur'anic Verse :			
Title :			Issue No. :
Author(s) :		Publisher :	
Abstract :			
Title :			Issue No. :
Author(s) :		Publisher :	
Abstract :			
Title :			Issue No. :
Author(s) :		Publisher :	
Abstract :			
Descriptive note :			
Proof-reader :		Checker :	
Date :		Date :	

Figure 5-1: an abstract file sample.

(iii) Judgement conditions

At the initial stage of reading, many individuals will find it highly desirable to take a precise decision. The reader after going for confirmation to the document that appears to be pertinent, marks in one of the judgement boxes his initial decisions whether they are relevant, irrelevant, or still a matter of doubt as to the subject matter. Initial decisions should be marked as (X) in the left-hand-side box. Later on, when revision process takes place, final decisions can be marked by (√) in the right-hand-side box.

(iv) Qur'anic verse

The Qur'anic verse is the essential part of the abstracting form in the sense that the whole body of abstract in the card is, and should be so, based on the verse included. The verse should be written clearly, accurately, and provided with vowel signs within the necessary part of the verse. There is no need for the whole verse to be mentioned, if it includes other aspects, unless they are relevant to the topic. The verse should be written between two quotation marks and followed by the chapter and the verse number. For example:

"... And not so much as the single weight of an atom in the earth or in the heaven is hidden from your Lord, neither anything smaller than that nor greater, but in a lucid Book." (10:61)

« وَمَا يَعْزُبُ عَنْ رَبِّكَ مِنْ مِثْقَالِ ذَرَّةٍ فِي
الْأَرْضِ وَلَا فِي السَّمَاءِ وَلَا أَضْفَرٌ مِنْ ذَلِكَ وَلَا
أَكْبَرُ إِلَّا فِي كِتَابٍ مُبِينٍ (١٠ : ٦١)

(v) Abstract

The obvious feature of the abstract is that it is shorter than the original document. It should also be brief, clear, and accurate. However, there are two different types of abstracts in terms of their methodology: an informative abstract and an indicative abstract. The informative abstract is essentially a condensation of the information in the document. It contains the principal ideas, methods, and data but omits excessive and detailed explanation. The indicative abstract contains generalized statements on the content of the

document and it is characterized primarily by the absence of qualitative and quantitative data. It is often little more than a listing of the principal subjects presented in narrative form. For the purpose of this study the indicative abstract is the more practical one. For example:

The word *dharrāh* is a reference to the red ant or the dust seen in the sunlight. The whole verse (10:61) means that God never treats mankind unjustly by any means, even by the weight of the smallest thing ever conceived.

تعنى كلمة نرة النملة الحمراء أو الهباء الذى يرى فى ضوء الشمس. وعليه يعنى مضمون الآية (٦١:١٠) بأن الله لا يقاضى بظلم أى إنسان حتى ولو كان مقدار وزن أصغر شئ يمكن تصوره.

(vi) Title

The title of the original document is intended to provide the indexers and the checkers with a guide to the subject content. In some cases authors change the title in different editions. The advantage of the title's existence is to help to avoid misleading the user if the author has more than one work. The title must be typed in full, accurately and clearly as printed in the document. For example:

al-jâmi' li- ahkâm al-Qur'ân

الجامع لأحكام القرآن

(vii) Publisher

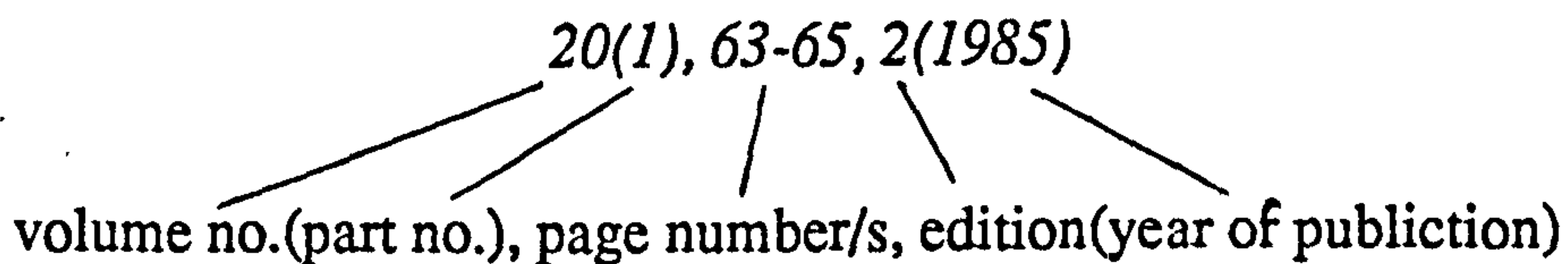
It is absolutely necessary to indicate the name of the publisher in order to avoid confusion that arises from different editions of the same document which have been printed by different publishers. Such confusion could give rise to mislocating the right volumes and page numbers. The publisher's name should be typed in full, as accurately and clearly as possible, followed by a comma, then the place of publication. Symbols that are employed by publishers to indicate their trademarks should be avoided. For example:

Dâr al-Kutub al-'Ilmiyyah, Beirut

دار الكتب العلمية، بيروت

(viii) Document issue number

The document issue number is the access that directs the indexers and the checkers to the abstract content in the original document. It is a series of numbers that starts with the volume number followed by the part number in brackets, page number/s, and lastly the edition followed by the year of publication in brackets. For example:

**(ix) Author(s)**

The author's name is an important datum in the reading form. Ignoring the author's name could result in losing the information if the title is either not known, or mixed with other document which has the same title. Indeed, in some cases instead of the title, the author's name is capitalized. Users tend to rely on the author's name and find themselves unguided if the title alone is indicated. However, the author's name should be given in full to avoid confusion with those of others. Confusion about the author's names wastes time for the abstract user. Initials are therefore disallowed and for a work written by two authors, the name of the first author only should be specified with the substitution of *et al* for the names of the others. Titles such as Doctor, Professor, *shaykh* etc. must be omitted. For committees only the name of the chairman needs to be provided, followed by *et al*. The name of the author must be inverted, with the last name first, followed by the other names in order to avoid confusion in the author index. For example:

al-Qurṭubî, Muḥammad ibn Aḥmad

القرطبي، محمد بن أحمد

(x) Descriptive note

The fact that the readers are subject specialist-experts will no doubt ensure that their services will include comments or notes. The role of the descriptive note is to represent the abstractor's notes, comments, ideas, criticism, and his evaluations. For example:

The implication of the word *dharrah* has been misused by most of the contemporary authors who rely on referring to the word *dharrah* as an atom. This seems to be a great misunderstanding of the origin of the lexical meaning as well as the historical fact of the word. Lexically, the word means the red ant as indicated by al-Qurṭubî. Historically, the discovery of atomic physics falls within the modern technical revolution. However, the Arabization of the word "atom" has led to the Arabic word *dharrah*, the fact which misinterprets the meaning of the one used in the Qur'an.

إن الجدير بالذكر أن كلمة نرة كما أوضحها كثيرا من الكتاب المعاصرين والذين يرجعون في كتاباتهم إلى فهمهم الخاص بذكر هذه الكلمة بمدلولها كما ورد في الفيزياء الحديثة. وبهذا المفهوم فإن هؤلاء الكتاب يعارضون حقيقتين لغوية وتاريخية. فالحقيقة اللغوية لمعنى كلمة نرة (الجمع نر) هو الإشارة إلى النملة الحمراء كما نكر القرطبي. أما الحقيقة التاريخية فتعود إلى أن كلمة نرة هي نتاج لعملية تعريب لحقت بالكلمة الإنجليزية atom بمدلولها في علم الفيزياء الذرية اللاحق بالثورة التكنولوجية الحديثة. وقد كان لعملية التعريب هذه الأثر الأول لعملية المزج الذي يقع به هؤلاء الكتاب.

(xi) Signature

The fact that errors do occur in abstracts is recognized by readers. The purpose of a signature is to identify the checker, to give him the credit for his work as well as to place responsibility upon him. The signature should, therefore, be in full name and it should be followed by the date, the month and the year of the service.

B. Indexing Cards

The indexing card is used by the indexer to compile the subject-term from the abstract form in order to establish the retrieval system. It also has the feature of collecting the index terms and establishing relationships among them. In principle this card should have five general sections (Figure 5-2):

Keyword :		Accession No. :	
Definition:			
USE :		Related terms :	
1.	8.	1.	8.
2.	9.	2.	9.
3.	10.	3.	10.
4.	11.	4.	11.
5.	12.	5.	12.
		13.	
		14.	
Keyword :		Accession No. :	
Definition:			
USE :		Related terms :	
1.	8.	1.	8.
2.	9.	2.	9.
3.	10.	3.	10.
4.	11.	4.	11.
5.	12.	5.	12.
6.	13.	6.	13.
7.			
Indexer :		Accession No. :	
Definition:			
USE :		Related terms :	
1.	8.	1.	8.
2.	9.	2.	9.
3.	10.	3.	10.
4.	11.	4.	11.
5.	12.	5.	12.
6.	13.	6.	13.
7.	14.	7.	14.
Indexer :		Proof-checker :	
Date :		Date :	

Figure 5-2: the index cards samples.

(i) Keyword

The keyword is to be decided by the indexer from the Qur'anic verse on the abstract form. Its location is along the top of the card because this is the first place the user looks at when scanning.

(ii) Card accession number

The accession number is a unique number that identifies the card. It is given next to the keyword box, in the upper right-hand corner. The accession number of the card should be added by the indexer in a serial number not exceeding four digits for the sake of simplicity. Added to the accession number there are two empty digits to which the keyword belongs. On matching the numbers in the construction of the system, the compiler looks at the class number next to the accession number in the card and scans the other keywords. The keywords are accumulated into classes or groups – later to be referred to as subfacets – which indicate the separate major areas – later to be referred to as facets – which build the initial structure of the retrieval system.

(iii) Definition

The definition supplies the indexers with information about the keyword. Definitions are neither parts of the keywords to which they are appended nor intended to be dictionary definitions. These are appended to the keywords only to clarify the limited sense in which keywords are to be used for retrieval purposes, and hence to exclude other possible alternative meanings. In that sense, definitions are not necessarily to be attached to all keywords, but only to those which show ambiguities. For example:

dharrah is a very tiny thing that has a weight and a size.

الذرة هي شيء صغير جدا في الوزن والحجم.

(iv) Cross-reference

This is a two-part section composed of two lists of keywords. Each list covers the important vocabularies in relation to the keyword either as equivalents or as related terms. The two lists might range anywhere in number, depending upon the number and importance of the ideas discussed. Equivalence terms (i.e. synonyms, derived nouns, and plurals) are listed in the *USE* column, and related terms are listed in the *RT* column.

(v) Signature

Signatures of the indexers are included to indicate that the signatories have done their best to ensure that their abstracts are as error-free as possible. The signatures should, therefore, be in the full name and not in initials or otherwise shortened form, followed by the date of the service rendered.

5.3. Construction Techniques

5.3.1. Selection of terms

As a first step, the subject field should be defined, and the boundaries between the subject itself and related issues of marginal importance distinguished. The second step is to compile the subject terms into easy access lists. There are four main steps in compiling the terminology, namely,

A. Checklists

In this step terms are extracted from the Qur'an, during a preliminary stage of indexing. From this representative collection, important concepts can be selected such as candidates for inclusion in the index system. The sample should be large enough to yield a reasonably complete collection of concepts. No attempt should be made to control the vocabulary or to determine the relationships among terms at this stage of service. However, it is highly likely that specialized vocabularies serving a specific subject will be listed in noun form in alphabetic order and presented on one or two sheets of paper. These

lists which are known as check-lists have the advantage of limiting the subjectivity of the staff constructors and improving the consistency and the reliability of their judgements. The major aim of check-lists is that staff workers can consider by a quick glance the relevance of virtually every term (i.e. if it is to be considered a term of the subject or not). Great help in constructing the check-lists comes from using Qur'anic concordances. Therefore multiple copies of specialized vocabularies should be provided for all the staff workers. An example of checklists compiled in the field of psychology is shown in Figure 5-3.

B. Authority files

As check-lists are intended to be the terms extracted from the Qur'an listed in nouns forms, the names representing important descriptors for certain subjects have to be separated in a different list, called the authority file. Names in the authority files could be historical characters, geographical regions, events, etc. The names in the files should be organized in alphabetical order using KWIC display, as it has been shown to be the most efficient in this case, with some cross-references to control the synonyms. An example of an authority files in the field of history is shown in Figure 5-4.

C. Class menus

After the collection of terms in steps A and B, the terms covered should be organized into main categories so that terms, after the selection process, may be stored and menued under appropriate headings to await further analysis. This operation is necessary because it will reveal the extent of the coverage for the terminology in the subject and the existence of the gaps and overloaded areas. Other advantages are that bringing similar terms together will facilitate the determination of the structural relationships between them. An example of this step in the field of economics is shown in Figure 5-5.

<i>alif</i>		<i>tâ'</i>	<i>hâ'</i>
<i>ibtighâ' al-funah</i>	Longing for discord	<i>al-ta' affuf</i>	<i>al-haḥhar</i>
<i>al-iftim</i>	Guilt	<i>al-tabattul</i>	<i>al-ḥasad</i>
<i>al-iḥsân</i>	Good doing	<i>al-tabdîd</i>	<i>al-ḥiqd</i>
<i>al-ikhâ'</i>	Brotherhood	<i>al-tabassum</i>	<i>al-ḥulm</i>
<i>al-ikhlâs</i>	Faithfulness	<i>al-tabayyun</i>	<i>al-ḥamd</i>
<i>al-adhâ</i>	Harm	<i>al-tajassus</i>	<i>al-ḥanân</i>
<i>istrâq al-sam'</i>	Eavesdropping	<i>al-tahayyuz</i>	<i>al-ḥayâ'</i>
<i>al-istighnâ'</i>	Self sufficient	<i>al-taḥiyyah</i>	<i>khâ'</i>
<i>al-istihzâ'</i>	Mockery	<i>al-tadabbur</i>	<i>al-khubth</i>
<i>al-isrâf</i>	Extravagance	<i>al-tasbîh</i>	<i>al-khidâ'</i>
<i>al-islâm</i>	Submission to God	<i>al-tasallut</i>	<i>al-khushâ'</i>
<i>al-uswah al-hasanah</i>	Good example	<i>al-tashayyu'</i>	<i>al-khiyânah</i>
<i>al-i'tidâl</i>	Balance	<i>al-taḍarru'</i>	<i>al-khayâlâ'</i>
<i>al-i'râd 'an al-laghw</i>	Shun loquacity	<i>al-tadlîl</i>	<i>dâl</i>
<i>al-iftirâ'</i>	Falsity	<i>al-tatayyur</i>	<i>al-du'â'</i>
<i>al-ifk</i>	Untruth	<i>al-ta'âwun</i>	<i>dhâl</i>
<i>al-iktinâz</i>	Hoarding	<i>al-ta'addî</i>	<i>al-dhul</i>
<i>al-ilhâd</i>	Atheism	<i>al-ta'assub</i>	<i>al-dham</i>
<i>al-ulfah</i>	Friendship	<i>al-taqîr</i>	<i>râ'</i>
<i>al-amânah</i>	Trustingness	<i>al-taqwâ</i>	<i>al-ra'fah</i>
<i>al-inâbah</i>	Submitting to God	<i>al-talbîs</i>	<i>al-raḥmah</i>
<i>al-intiqâm</i>	Revenge	<i>al-tanâbuz</i>	<i>al-rashâd</i>
<i>al-insilâkh</i>	Detaching	<i>al-tankîl</i>	<i>al-riḍâ</i>
<i>al-inshirâh</i>	Rejoicing	<i>al-tawâdu'</i>	<i>al-rûh</i>
<i>al-âbah</i>	Sincere penitence	<i>al-tawbah</i>	<i>al-riyâ'</i>
<i>al-îthâr</i>	Altruism	<i>al-tawakkul</i>	<i>al-rîbah</i>
<i>al-îmân</i>	Believing	<i>thâ'</i>	<i>zâ'</i>
<i>bâ'</i>		<i>al-thiqah</i>	<i>al-za'm</i>
<i>al-birr</i>	Righteousness	<i>jîm</i>	<i>al-zuhd</i>
<i>al-bukhl</i>	Avarice	<i>al-jubn</i>	<i>al-zaygh</i>
<i>al-baṭar</i>	Wantonness	<i>al-jahd</i>	
<i>al-baṭsh</i>	Oppression	<i>al-jadal</i>	
<i>al-bughd</i>	Dislike	<i>al-jahr bil-sû'</i>	
<i>al-baghy</i>	Tyranny	<i>al-jûd</i>	
<i>al-buḥân</i>	Calumny		
		<i>الثقة</i>	
		<i>الجبن</i>	
		<i>الجدد</i>	
		<i>الجدل</i>	
		<i>الجهربالسوء</i>	
		<i>الجود</i>	
			<i>الزعم</i>
			<i>الزهد</i>
			<i>الزيغ</i>
			<i>الذم</i>
			<i>الدم</i>
			<i>الذل</i>
			<i>الذم</i>
			<i>الرحمة</i>
			<i>الرشاد</i>
			<i>الرضا</i>
			<i>الروح</i>
			<i>الرياء</i>
			<i>الريبة</i>
			<i>الزعم</i>
			<i>الزهد</i>
			<i>الزيغ</i>

Figure 5-3: a checklist sample of Qur'anic terms in the field of psychology.

01.01	<i>Adam</i>	آدم		02.06	<i>al-Bayt al-Harâm</i>	البيت الحرام	= 22.01	02.05	02.07
01.02	<i>Ibnayy</i>	ابني آدم		02.07	<i>al-Bayt al-'Atiq</i>	البيت العتيق	= 22.01	02.05	02.06
01.03	<i>Zawj</i>	زوج آدم		04.01	<i>Thamûd</i>	ثمود	= 14.03		
01.04	<i>Aazar</i>	آزر	= 01.06	05.01	<i>Jâlût</i>	جالوت			
01.05	<i>Ibrâhîm</i>	إبراهيم		05.02	<i>Jibrîl</i>	جبريل			
01.06	<i>Abû Ibrâhîm</i>	أبو إبراهيم	= 01.04	06.01	<i>Hunayn</i>	حنين			
01.07	<i>Imra'at Ibrâhîm</i>	امرأة إبراهيم		06.02	<i>al-Hawâriyûn</i>	الحواريون	= 18.11		
01.08	<i>Dhuriyyat Ibrâhîm</i>	نرية إبراهيم	= 01.16	08.01	<i>Dâwûd</i>	داود			
01.09	<i>Qawm Ibrâhîm</i>	قوم إبراهيم		09.01	<i>Dhû al-Qarnayn</i>	نوالقرنين			
01.10	<i>Maqâm Ibrâhîm</i>	مقام إبراهيم		09.02	<i>Dhu al-Kifl</i>	نوالكفل			
01.11	<i>Abû Lahab</i>	أبو لهب		09.03	<i>Dhu al-Nûn</i>	نوالنون	= 14.01	28.10	
01.12	<i>Imra'at Abû Lahab</i>	امرأة أبو لهب		10.01	<i>al-Rûm</i>	الروم			
01.13	<i>Uhud</i>	أحد		11.01	<i>Zakariyyâ</i>	زكريا			
01.14	<i>Ahmad</i>	أحمد	= 24.03	11.02	<i>Zakariyyâ</i>	زكريا			
01.15	<i>Idris</i>	إدريس		11.03	<i>Zakariyyâ</i>	زكريا			
01.16	<i>Ishâq</i>	إسحاق	= 01.08	11.04	<i>Zayd</i>	زيد	= 28.03		
01.17	<i>Ishâq</i>	إسحاق	= 01.18	11.05	<i>Zawj Zayd</i>	زوج زيد			
01.18	<i>Isrâ'il</i>	إسرائيل	= 01.17	12.01	<i>al-Sâmiriyy</i>	السامري			
01.19	<i>Banî Isrâ'il</i>	بنو إسرائيل	= 28.06	12.02	<i>Saba'</i>	سبأ			
01.20	<i>Banî Isrâ'il</i>	بنو إسرائيل		12.03	<i>Saba'</i>	سبأ			
01.21	<i>Nabiyy Banî Isrâ'il</i>	نبي بنو إسرائيل		12.04	<i>Sulaymân</i>	سليمان			
01.22	<i>Abû Ismâ'il</i>	أبو إسماعيل	= 01.08	12.05	<i>Saynâ'</i>	سيناء			
01.22	<i>Ismâ'il</i>	إسماعيل	= 01.05	12.06	<i>Tûr</i>	طور سيناء			
01.23	<i>Abû Ismâ'il</i>	أبو إسماعيل		13.01	<i>Shu'ayb</i>	شعيب			
01.24	<i>Ashâb al-Ukhdûd</i>	أصحاب الأخدود		13.02	<i>Shu'ayb</i>	شعيب			
01.24	<i>Ashâb al-Ras</i>	أصحاب الرس		13.03	<i>Shu'ayb</i>	شعيب	= 24.07	24.08	
01.25	<i>Ashâb al-Fil</i>	أصحاب الفيل		14.01	<i>Shu'ayb</i>	شعيب	= 09.03	28.10	
01.26	<i>Ashâb al-Qaryah</i>	أصحاب القرية		14.02	<i>Sâhib al-Hû</i>	صاحب الحوت			
01.27	<i>Ashâb al-Kahf</i>	أصحاب الكهف		14.03	<i>Sâlih</i>	صالح			
01.28	<i>Ayûb</i>	أيوب		14.04	<i>Sâlih</i>	صالح			
01.29	<i>Imra'at Ayûb</i>	امرأة أيوب		16.01	<i>Qawm Sâlih</i>	قوم صالح	= 04.01		
02.01	<i>Bâbil</i>	بابل		18.01	<i>al-Safâ</i>	الصفا			
02.02	<i>Badr</i>	بدر		18.02	<i>Tâlût</i>	طالوت			
02.03	<i>Ba'l</i>	بعل		18.03	<i>'Aad</i>	عاد	= 26.07		
02.04	<i>Bakkah</i>	بكة	= 24.15		<i>al-'Uzzah</i>	العمة			
02.05	<i>al-Bayt</i>	البيت	= 22.01		<i>'Uzayr</i>	عزير			
			= 02.06						
			02.07						

Figure 5-4: an authority file sample of Qur'anic terms in the field of history

cont. 5-4.

18.04	al-'Azîz					
18.05	Imra'at al-'Azîz	امرأة العزيز				
18.06	'Imrân	عمران				
18.07	Aal 'Imrân	آل عمران				
18.08	Ibnat 'Imrân	ابنت عمران		24.12	Um Maryam	
18.09	Imra'at 'Imrân	امرأة عمران		24.13	Misr	
18.10	'Ijsâ	عيسى		24.14	'Azîz Misr	عزیز مصر = 18.04
18.11	Um 'Ijsâ	أم عيسى		24.15	Makkah	مكة = 02.04
18.12	Anşâr 'Ijsâ	انصار عيسى		24.16	Mâsâ	موسى = 26.03
20.01	Fir'awn	فرعون		24.17	Ukht Mâsâ	أخت موسى = 26.02
20.02	Imra'at Fir'awn	امرأة فرعون		24.18	Akhtâ Mâsâ	أختو موسى
20.03	Qawm Fir'awn	قوم فرعون		24.19	Um Mâsâ	أم موسى
21.01	Qârûn	قارون		24.20	Ahl Mâsâ	أهل موسى
21.02	Quraysh	قريش		24.21	Qawm Mâsâ	قوم موسى = 01.19
21.03	Qawm Tubb'	قوم تبع		25.01	Nûh	نوح
22.01	al-Ka'bah	الكعبة		25.02	Ibn Nûh	ابن نوح
23.01	al-Lât	اللات		25.03	Imra'at Nûh	امرأة نوح
23.02	Luqmân	لقمان		25.04	Qawm Nûh	قوم نوح
23.03	Ibn Luqmân	ابن لقمان		26.01	Hârûl	هاروت
23.04	Lût	لوط		26.02	Hârûn	هارون
23.05	Ikhwân Lût	إخوان لوط		26.03	Ibn Um Hârûn	ابن أم هارون = 24.16
23.06	Imra'at Lût	امرأة لوط		26.04	Ukht Hârûn	أخت هارون = 24.10
23.07	Banât Lût	بنات لوط		26.05	Hâmân	هامان
24.01	Ma'jûj	ماجوج		26.06	Hûd	هود
24.02	Mârût	ماروت		26.07	Hûd	هود = 18.01
24.03	Muḥammad	محمد		28.01	Ya'jûj	ياجوج
24.04	Azwâj Muḥammad	أزواج محمد		28.02	Yathrib	يثرب
24.05	Banât Muḥammad	بنات محمد		28.03	Yahyyâ	يحيى = 11.02
24.06	Qawm Muḥammad	قوم محمد		28.04	Ya'qûb	يعقوب = 01.17 01.18
24.07	Madyan	مدين		28.05	Ya'qûb	يعقوب = 01.16
24.08	Qawm Madyan	قوم مدين		28.06	Banî Ya'qûb	بنو يعقوب = 01.19 28.09
24.09	Mâ' Madyan	ماء مدين		28.07	Yûsuf	يوسف = 01.18 28.04
24.10	Maryam	مريم		28.08	Abû Yûsuf	أبو يوسف = 01.19 28.06
24.11	Ibn Maryam	ابن مريم		28.09	Ikhwat Yûsuf	أخوة يوسف = 09.03 14.01
				28.10	Yûnus	يونس
				28.11	Qawm Yûnus	قوم يونس

<i>al-bī'ah</i>	environment	نبات	<i>al-nabāt</i>	plants	الحيوان	animals	<i>al-hayiwān</i>	transactions	<i>al-mu'amalāt</i>	المعاملات
<i>al-ābār</i>	wells	الآبار	<i>al-abba</i>	pastures	الإبل	camels	<i>al-ibil</i>	wage	<i>al-ajr</i>	الأجر
<i>al-arḍ</i>	earth	الأرض	<i>al-ithl</i>	tamarisks	الأشجار	hair	<i>al-ash'ār</i>	appointed time	<i>al-ajal</i>	الأجل
<i>al-anhār</i>	rivers	الأنهار	<i>al-baṣal</i>	onions	الأصواف	wools	<i>al-aṣwāf</i>	wealth	<i>al-amwāl</i>	الأموال
<i>al-awḍiyah</i>	valleys	الوادي	<i>al-buqūl</i>	green herbs	الأنعام	cattles	<i>al-an'ām</i>	spending	<i>al-infāq</i>	الإففاق
<i>al-biḥār</i>	seas	البحار	<i>al-tīn</i>	figs	الأوبار	plies	<i>al-awbār</i>	spoils of war	<i>al-anfāl</i>	الأنفال
<i>al-ṭharā</i>	sands	الثرى	<i>al-ṭhamarāt</i>	fruits	البدن	camels	<i>al-budn</i>	sales	<i>al-bay'</i>	البيع
<i>al-jibāl</i>	mountains	الجبال	<i>al-janāt</i>	gardens	البعير	camels	<i>al-ba'ir</i>	poll tax	<i>al-jizyah</i>	الجزية
<i>al-ḥadīd</i>	iron	الحديد	<i>al-ḥab</i>	grains	البغال	mules	<i>al-bighāl</i>	land tax	<i>al-kharāj</i>	الخروج
<i>al-dhahab</i>	gold	الذهب	<i>al-ḥadā'iq</i>	gardens	البحر	cows	<i>al-baqar</i>	debt	<i>al-dayn</i>	الدين
<i>al-riyāḥ</i>	winds	الرياح	<i>al-dihn</i>	anointing oil	الجلود	leather	<i>al-julūd</i>	blood-money	<i>al-diyyah</i>	الدية
<i>al-sahāb</i>	clouds	السحاب	<i>al-ruṭab</i>	ripe dates	الجمال	camels	<i>al-jimāt</i>	interest	<i>al-ribā</i>	الربا
<i>al-ṣukḥūr</i>	rocks	الصخور	<i>al-rummān</i>	pomegranates	الجوارح	beasts	<i>al-jawāriḥ</i>	profit	<i>al-riḥ</i>	الربح
<i>al-'uyūn</i>	springs	العيون	<i>al-zar'</i>	plants	الحمير	donkeys	<i>al-ḥamir</i>	pledge	<i>al-rahn</i>	الرهن
<i>al-ghayth</i>	rain	الغيث	<i>al-zaytūn</i>	olives	الخنازير	pigs	<i>al-khanāzīr</i>	purification due	<i>al-zakāh</i>	الزكاة
<i>al-fiddah</i>	silver	الفضة	<i>al-shajar</i>	trees	الخيل	horses	<i>al-khayl</i>	partnership	<i>al-sharākah</i>	الشراكة
<i>al-qīr</i>	copper	القطر	<i>al-ṣubgh</i>	glue	الدم	blood	<i>al-dam</i>	charity	<i>al-sadaqah</i>	الصدقة
<i>al-lu'lu'</i>	pearl	اللؤلؤ	<i>al-'adas</i>	lentils	الدواب	animals	<i>al-dawāb</i>	contracts	<i>al-'uqūd</i>	العقود
<i>al-mā'</i>	water	الماء	<i>al-'asal</i>	honey	السلوى	quails	<i>al-salwā</i>	promises	<i>al-'uhūd</i>	العهود
<i>al-murjān</i>	coral	المرجان	<i>al-fākiha</i>	fruits	الضأن	sheeps	<i>al-dā'in</i>	spoils of war	<i>al-ghanimah</i>	الغنيمة
<i>al-muzn</i>	clouds	المزن	<i>al-fūm</i>	cereals	الضفادع	frogs	<i>al-dafādi'</i>	ransom	<i>al-fidyah</i>	الفدية
<i>al-yāqūt</i>	rubies	الياقوت	<i>al-qīṭhā'</i>	cucumbers	الطير	birds	<i>al-ṭayr</i>	spoils of war	<i>al-fayy'</i>	الغنم
			<i>al-qadḥ</i>	vegetables	التعل	small ants	<i>al-qummāl</i>	loan	<i>al-qarḍ</i>	القرض
			<i>al-nabāt</i>	plants	الكلاب	dogs	<i>al-kilāb</i>	expiation	<i>al-kaffārah</i>	الكفارة
			<i>al-nakhīl</i>	palm trees	النحل	bees	<i>al-nahl</i>	property	<i>al-milkiyyah</i>	الملكية
			<i>al-mann</i>	manna	النمل	ants	<i>al-naml</i>	promise	<i>al-mithāq</i>	الميثاق
								inheritance	<i>al-mirāth</i>	الميراث
								gambling	<i>al-maysir</i>	الميسير
								vows	<i>al-nudhur</i>	النذر
								bequest	<i>al-waṣiyyah</i>	الوصية

Figure 5-5: class menu sample of Qur'anic terms in the field of economics

cont. 5-5.

<i>al-halât</i>	situations	الحالات	<i>al-ashkhâs</i>	class-people	الأشخاص	<i>al-a'mâl</i>	activities	الأعمال	<i>al-sulûkiyyât</i>	behaviour	السلوكيات
<i>al-âlâ'</i>	signs	الآلاء	<i>abnâ' al-sabîl</i>	wayfarers	بناء السبيل	<i>al-bidâ'ah</i>	goods	البضاعة	<i>al-ihsân</i>	good doing	الإحسان
<i>al-amân</i>	security	الأمان	<i>al-riqâb</i>	slaves	الرقاب	<i>al-tijârah</i>	trade	التجارة	<i>al-ikhlâs</i>	faithfulness	الإخلاص
<i>al-implâq</i>	poverty	الإملاق	<i>al-fuqarâ'</i>	poor	الفقراء	<i>al-juhd</i>	effort	الجهد	<i>al-idikhâr</i>	saving	الإدخار
<i>al-ba's</i>	misery	البأس	<i>al-qurbâ</i>	kins	التقرب	<i>al-ḥaşâd</i>	harvest	الحصاد	<i>al-adhâ</i>	harm	الأذى
<i>al-barakah</i>	blessing	البركة	<i>al-masâkîn</i>	indigents	المساكين	<i>al-zirâ'ah</i>	agriculture	الزراعة	<i>al-istighnâ'</i>	self sufficiency	الإستغناء
<i>al-taraf</i>	affluence	الترف	<i>al-yatâmâ</i>	orphans	اليتامى	<i>al-sa'y</i>	activity	النشاط	<i>al-isrâf</i>	extravagance	الإسراف
<i>al-jû'</i>	starvation	الجوع				<i>al-shahñ</i>	shipment	الشحن	<i>al-i'tidâl</i>	balance	الإعتدال
<i>al-rakhâ'</i>	welfare	الرخاء				<i>al-shughl</i>	work	الشغل	<i>al-iktinâz</i>	hoarding	الإكتناز
<i>al-rizq</i>	income	الرزق				<i>al-ṣinâ'ah</i>	industry	الصناعة	<i>al-ikrâh</i>	forcing	الإكراه
<i>al-ra'd</i>	thunder	الرعد				<i>al-ṣayd</i>	hunting	الصيد	<i>al-amânah</i>	trustingness	الأمانة
<i>al-sarrâ'</i>	pleasure	السراء				<i>al-ḍarb fi al-arḍ</i>	activities	النضرب في الأرض	<i>al-imsâk</i>	holding	الإمساك
<i>al-ḍarrâ'</i>	adversity	الضراء				<i>al-'amal</i>	work	العمل	<i>al-iḥâr</i>	altruism	الإيثار
<i>al-danak</i>	difficulty	الضنك				<i>al-fulk</i>	ships	الفلك	<i>al-bukhl</i>	avarice	البخل
<i>al-tufân</i>	flood	الطوفان				<i>al-kad</i>	diligent work	الكد	<i>al-birr</i>	righteousness	البر
<i>al-zama'</i>	thirsty	الظمأ				<i>al-kadh</i>	diligent work	الكدح	<i>al-baḥar</i>	wantonness	البطر
<i>al-'usr</i>	difficulty	العسر				<i>al-hijrah</i>	migration	الهجرة	<i>al-baghy</i>	tyranny	البغي
<i>al-'ilah</i>	poverty	العيلة							<i>al-tabdîd</i>	wasting	التبديد
<i>al-ghinâ</i>	richness	الغنى							<i>al-tabdhîr</i>	wasting	التدبير
<i>al-faqr</i>	poverty	الفقر							<i>al-taqîr</i>	niggardliness	التقتير
<i>al-matrabah</i>	misery	المتربة							<i>al-ḥirṣ</i>	greed	الحرص
<i>al-masghabah</i>	famine	المسغبة							<i>al-hasad</i>	envy	الحسد
<i>al-naṣîb</i>	share	النصيب							<i>al-khawf</i>	fear	الخوف
<i>al-ni'am</i>	bounty	النعم							<i>al-khiyânah</i>	betrayal	الخيانة
<i>al-yusr</i>	easiness	اليسر							<i>al-sû'âl</i>	begging	السؤال
									<i>al-shuh</i>	stinginess	الشح
									<i>al-zulm</i>	injustice	الظلم
									<i>al-'adl</i>	justice	العدل
									<i>al-ya's</i>	renunciation	النياس

D. Consultation of experts

It must be emphasized that all the steps are empirical and based on real concepts. The empirical method is favoured, because the purpose of the system essentially is subject retrieval for the Qur'an. Thus these steps are likely to be employed at an early stage in the construction of the system and made available to the abstractors during the construction of the verse searching. Next subject experts will be asked to contribute important concepts. All terms are then to be considered by a committee of specialists, preferably consisting of both compilers and subject experts, who will decide which of the terms represent the related category and which do not. The references that are used should be made available in at least six copies for each item. The importance of these references is to highlight the slight differences between the terms understood from the Qur'anic point of view and those belonging to the modern disciplines. The references that are suggested in this exercise are listed in Figure 5-6 and Figure 5-7.

5.3.2. Compilers' guidelines

It may be argued that a few step-by-step guidelines are not sufficient. However, the action which follows has been broken down into discrete steps with more general guidelines included in recognizing the fact that it does not replace the compiler's own experience; it, in addition, offers flexibility to be used in other system constructions as well.

A. Readers' guidelines

First of all, before starting the work in detail, the subject must be determined. At this stage, a group of homogeneous experts should be brought together, who should be subgrouped in advance and divided into specialist branches. Next, elementary and relevance materials have to be prepared for all the participants.

Qur'anic Sciences

علوم القرآن

al-Zurqânî, M. 'A. (1943), *manâhil al-'irfân fî 'ulûm al-Qur'ân*, Cairo: Dâr Ihyâ' al-Kutub al-'Arabiyyah, 2 vols.

الزرقاني، محمد عبد العظيم (١٩٤٣)، *مناهل العرفان في علوم القرآن*، القاهرة: دار إحياء الكتب العربية، مجلدين.

al-Zarkashî, B. M. (1958), *al-burhân fî 'ulûm al-Qur'an*, Cairo: Dâr Ihyâ' al-Kutub al-'Arabiyyah, 4 vols.

الزركشي، بدر الدين محمد بن عبد الله (١٩٥٨)، *البرهان في علوم القرآن*، القاهرة: دار إحياء الكتب العربية، ٤ مجلدات.

al-Suyûfî, J. 'A. (1987), *al-itqân fî 'ulûm al-Qur'ân*, Beirut: Dâr al-Kutub al-'Ilmiyyah, 2 vols.

السيوطي، جلال الدين عبد الرحمن (١٩٨٧)، *الإتقان في علوم القرآن*، بيروت: دار الكتب العلمية، مجلدين.

Exegetical Methodology

أصول التفسير

Ibn Taymiyyah T. 'A. (1979), *muqadimah fî usûl al-tafsîr*, Beirut: Dâr al-Qur'ân al-Karîm.

ابن تيمية، تقي الدين بن عبد الحلیم (١٩٧٩)، *مقدمة في أصول التفسير*، بيروت: دار القرآن الكريم.

Juridic Exegesis

تفسير الفقهاء

al-Qurtubî, A. M. (1985), *al-jâmi' li-ahkâm al-Qur'ân*, Beirut: Ihyâ' al-Turâth al-'Arabî, 10 vols.

القرطبي، أبو عبد الله محمد (١٩٨٥)، *الجامع لأحكام القرآن*، بيروت: إحياء التراث العربي، ١٠ مجلدات.

al-Jaṣṣās, A. A. (1968), *ahkâm al-Qur'ân*, Beirut: Dâr al-Kutub al-'Arabiyyah, 2 vols.

الجاصاص، أبو بكر أحمد بن علي (١٩٦٨)، *أحكام القرآن*، بيروت: دار الكتب العربية.

Sunnite Exegesis

تفسير أهل السنة

Ibn Kathîr, A. 'I. (1969), *tafsîr al-Qur'ân al-'azîm*, Beirut: Dâr al-Ma'rifah, 4 vols.

ابن كثير، الحافظ عماد الدين الفضل اسماعيل (١٩٦٩)، *تفسير القرآن العظيم*، بيروت: دار المعرفة، ٤ مجلدات.

al-Baghawî, H. M. (1983), *ma'âlim al-tanzîl*, Beirut: Dâr al-Ma'rifah, 4 vols.

البغوي، حسين بن مسعود (١٩٨٣)، *معالم التنزيل*، بيروت: دار المعرفة، ٤ مجلدات.

al-Râzî, F. M. (1962), *mafâtîḥ al-ghayb*, Cairo: al-Maṭba'ah al-Maṣriyyah, 32 vols.

الرازي، فخر الدين محمد بن عمر (١٩٦٢)، *مفاتيح الغيب*، القاهرة: المطبعة المصرية، ٣٢ مجلد.

al-Ṭabarî, A. J. (1954), *jâmi' al-bayân fî tafsîr al-Qur'ân*, Cairo: Maṭba'at Muṣṭafâ al-Ḥalabî, 30 vols.

الطبري، أبو جعفر محمد بن حسين (١٩٥٤)، *جامع البيان في تفسير القرآن*، القاهرة: مطبعة مصطفى الحلبي، ٣٠ مجلد.

Figure 5-6: a reading references sample in Qur'anic studies.

Shi'ite Exegesis**تفسير الشيعة**

al-Ṭabṭabâ'i, S. M. (1974), *al-mîzân fî tafsîr* الميزان في تفسير الطباطبائي، سيد محمد حسين (١٩٧٤)، الميزان في تفسير القرآن، بيروت: مؤسسة الأعلام للمطبوعات، ٢٠ مجلد.
al-Qur'ân, Beirut: Mu'assasat al-A'lâm lil-Maṭbû'ât, 20 vols.

Kharijite Exegesis**تفسير الخوارج**

Itfîsh, M. Y. (n.d.), *hamayân al-zâd ilâ dâr al-ma'âd*, Oman: Wazârat al-Turâth al-Qawmî wa al-Thaqâfah, 13 vols. إطفيش، محمد بن يوسف (ب.ت) هميان الزاد إلى دار المعاد، عمان: وزارة التراث القومي والثقافة، ١٣ مجلد.

Sufi Exegesis**تفسير الصوفية**

al-Alûsî, S. M. (1964), *rûḥ al-ma'ânî*, Cairo: Mu'assasat al-Ḥalabî, 9 vols. الألويسي، سيد محمود (١٩٦٤)، روح المعاني، القاهرة: مؤسسة الحلبي، ٩ مجلدات.

Mu'tazilite Exegesis**تفسير المعتزلة**

al-Zamakhsharî, A. M. (1972), *al-kashshâf 'an ḥaqâ'iq al-tanzîl*, Cairo: Maṭba'at al-Ḥalabî, 4 vols. الزمخشري، أبو القاسم محمود بن عمر (١٩٧٢)، الكشاف عن حقائق التنزيل، القاهرة: مطبعة الحلبي، ٤ مجلدات.

Modernists Exegesis**تفسير المعاصرون**

Ridâ, M. R. (1949), *tafsîr al-Qur'ân al-hakîm*, Beirut: Dâr al-Ma'rifah, 12 vols. رضا، محمد رشيد (١٩٤٩)، تفسير القرآن الحكيم، بيروت: دار المعرفة، ١٢ مجلد.

Qutb, S. (1978), *fî zilâl al-Qur'ân*, Beirut: Dâr al-Shurûq, 6 vols. قطب، سيد (١٩٧٨)، في ظلال القرآن، بيروت: دار الشروق، ٦ مجلدات.

al-Marâghî, M. M. (1960), *tafsîr al-Marâghî*, Cairo: Maṭba'at Muṣṭafâ al-Ḥalabî, 30 vols. المرآغي، محمد مصطفى (١٩٦٠)، تفسير المرآغي، القاهرة: مطبعة مصطفى الحلبي، ٣٠ مجلد.

Abrogation**النسخ**

Ibn al-Bârizî, H. 'A. (1988), *nâsikh al-Qur'ân al-'azîz wa mansûkhuh*, Beirut: Dâr al-Risâlah. ابن البارزي، هبة الله بن عبد الرحيم (١٩٨٨)، ناسخ القرآن العزيز ومنسوخه، بيروت: دار الرسالة.

Occasions of Revelations

أسباب النزول

al-Suyûtî, J. 'A. (1987), *lubâb al-nuqûl fî asbâb al-nuzûl*, Beirut: Dâr Qutaybah.

السيوطي، جلال الدين عبد الرحمن (١٩٨٣)، لباب النقول في أسباب النزول، بيروت: دار إحياء العلوم.

al-Wâhidî, 'A. M. (1983), *asbâb nuzûl al-Qur'ân*, Jaddah: Dâr al-Qiblah lil-Thaqâfa al-Islâmiyyah.

الواحدي، أبو الحسن علي (١٩٨٣)، أسباب نزول القرآن، جدة: دار القبلة للثقافة الإسلامية.

Various Readings

القراءات

Ibn al-Jazrî, M. M. (1926), *al-nashr fî al-qirâ'ât al-'ashr*, Damascus: Maṭba'at al-Tawfîq, 2 vols.

ابن الجزري، محمد بن محمد (١٩٢٦)، النشر في القراءات العشر، دمشق: مطبعة التوفيق، مجلدين.

al-Dânî, 'U. S. (1984), *kitâb al-taysîr fî al-qirâ'ât al-sab'*, Beirut: Dâr al-Kitâb al-'Arabî.

الداني، عثمان بن سعيد (١٩٨٤)، كتاب التيسير في القراءات السبع، بيروت: دار الكتاب العربي.

'Umar, A. M. & Makram, 'A. S. (1982-1985), *mu'jam al-qirâ'ât al-Qur'âniyyah*, Kuwait: Jami'at al-Kuwait, 8 vols.

عمر، أحمد مختار ومكرم، عبد العال سالم (١٩٨٢-١٩٨٥)، معجم القراءات القرآنية، الكويت: جامعة الكويت، ٨ مجلدات.

Synonyms and Homographs

الوجوه والنظائر

al-Tha'âlibî, 'A. M. (1984), *al-ashbâh wa al-nazâ'ir*, Cairo: Maktabat al-Mutanabî.

الثعالبي، عبد الملك بن محمد (١٩٨٤)، الأشباه والنظائر، القاهرة: مكتبة المتنبى.

al-Damaghânî, H. M. (1983), *qâmûs al-Qur'ân*, Beirut: Dâr al-'Ilm lil-Malâyi'n.

الدمغاني، الحسين بن محمد (١٩٨٣)، قاموس القرآن، بيروت: دار العلم للملايين.

Ambiguity

المشكل

al-Aṣfahânî, A. H. (n.d.), *mu'jam mufradât alfâz al-Qur'ân*, Beirut: Dâr al-Kâtib al-'Arabî.

الأصفهاني، الراغب أبو القاسم حسين بن محمد (ب.ت) معجم مفردات ألفاظ القرآن، بيروت: دار الكتاب العربي.

Ibn 'Abd al-Salâm, 'I. (1982), *fawâ'id fî mushkil al-Qur'ân*, Jiddah: Dâr al-Shurûq.

ابن عبد السلام، العز (١٩٨٢)، فوائد مشكل القرآن، جدة: دار الشروق.

Ibn Qutaybah, 'A. M. (1973), *ta'wîl mushkil al-Qur'ân*, Cairo: Dâr al-Turâth.

ابن قتيبة، عبد الله بن مسلم (١٩٧٣)، تأويل مشكل القرآن، القاهرة: دار التراث.

Repetitions

التكرار

al-Asâdabây, 'A. A. (1969), *mutshâbih al-Qur'ân*, Cairo: Dâr al-Turâth, 2 vols.

الأسداباي، عبد الجبار بن أحمد (١٩٦٩)، متشابه القرآن، القاهرة: دار التراث، مجلدين.

al-Karamânî, M. H. (1978), *asrâr al-tikrâr fî al-Qur'ân*, Cairo: Dâr al-I'tisâm.

الكرمانى، محمد بن حمزة بن نصر (١٩٧٨)، أسرار التكرار فى القرآن، القاهرة: دار الإعتصام.

al-Suyûtî, J. 'A. (1978), *asrâr tartîb al-Qur'ân*, Cairo: Dâr al-I'tisâm.

السيوطى، جلال الدين عبد الرحمن (١٩٧٨)، أسرار ترتيب القرآن، القاهرة: دار الإعتصام.

Metaphors

المجاز

Abû 'Ubaydah, M. M. (1954), *majâz al-Qur'ân*, Cairo: Maṭba'at al-Khûlî.

أبو عبيدة، معمر بن المثنى (١٩٥٤)، مجاز القرآن، القاهرة: مطبعة الخولى.

Univalent and Polyvalent Utterances

الوقف والأبتداء

Ibn al-Anbârî, M. Q. (1971), *kitâb idâh al-waqf wa al-ibtidâ' fî kitâb Allah*, Damascus: al-Maṭba'ah al-Ta'âwuniyyah, 2 vols.

ابن الأنبارى، محمد بن القاسم بن محمد (١٩٧١)، كتاب إيضاح الوقف والأبتداء فى كتاب الله، دمشق: المطبعة التعاونية، مجلدين.

Similes

الأمثال

Ibn Nâqiyâ, A. 'A. (1974), *al-jumân fî tashbîhât al-Qur'ân*, Alexandria: Mansha'it al-Ma'ârif.

ابن ناقياء، أبو القاسم عبد الله (١٩٧٤)، الجمان فى تشبيهات القرآن، الإسكندرية: منشأة المعارف.

Lexicons

المعاجم

Ibrâhîm, M. I. (1968), *mu'jam al-alfâz wa al-a'lâm al-Qur'aniyyah*, Cairo: Dâr al-Fikr al-'Arabî.

إبراهيم، محمد اسماعيل (١٩٦٨)، معجم الألفاظ والأعلام القرآنية، القاهرة: دار الفكر العربى.

Concordances

الفهارس

'Abd al-Bâqî, M. F. (1984), *al-mu'jam al-mufahras li-alfâz al-Qur'an al-karîm*, Istanbul: al-Maktabah al-Islâmiyyah.

عبد الباقي، محمد فؤاد (١٩٨٤)، المعجم المفهرس لألفاظ القرآن الكريم، استنبول: المكتبة الإسلامية.

Agriculture

Agricultural / Biological Vocabulary. Washington, D.C.: National Agricultural Library, 1967.

Biology

Thesaurus of Entomology, by Richard H. Foote, College Park, Md.: Entomological Society of America, 1977.

Business and Management

SPINES Thesaurus: a controlled and structured vocabulary of science and technology for policymaking, management and development, Paris: UNESCO, 3 vols.

Education

Thesaurus of ERIC Descriptors. Washington, D.C.: Office of Education, Educational Resources Information Center, 1969.

Information Retrieval Thesaurus of Education Terms, by G. C. Barhydt, C. T. Schmidt and K. T. Chang, Cleveland, Ohio: Case Western Reserve University.

Economics

Macrothesaurus: a basic list of economic and social development terms. Paris: OECD, 1972.

Environmental Sciences

Thesaurus of Environmental Studies, by Diepenbrock, J.S. et al, College Park, Md: University of Maryland, School of Librarianship, 1971.

Geology

Geosaurus: Geosystems' thesaurus for geoscience and guide to Geotitles Weekly, by Graham Lea et al, London: Geosystems, 1973.

Medicine

Medical Subject Headings, National Library of Medicine, Bethesda, Md.: U.S. Department of Health, Education, and Welfare, 1971..

Psychology

Thesaurus of Psychological Index Terms, Washington, D.C.: The American Library Association, 1977.

Political Science

Political Science Thesaurus, compiled by Carl Beck, Eleanor D. Dym and J. Thomas McKechnie, Washington, D.C.: American Political Science Association, 1975.

Sociology

Thesaurus for Sociological Research Terminology, by C. van de Merwe, A. M. de Jong and J. M. P. Kanapen, Rotterdam: Rotterdam University Press, 1974.

Social Services

Welfare of the Elderly: a faceted classification and thesaurus, by Jean Aitchison, Vol.1, classified schedules, London: Aslib, 1972.

Figure 5-7: a reading references sample for terminological studies.

Later on, the readers move to the Qur'an to scan it for the identification of those verses that best reflect the specified selected subject-term. The essential operations in this process are as follows:

- (1) Clear the mind as much as possible and rid it of all artificial memory and preconceived and trivial visual ideas and thoughts.
- (2) Evaluate the self and recognize very clearly one's limitations and capabilities. Bear in mind that understanding the Qur'an is a vast, multi-dimensional process. Do not delve into grammatical and lexical issues, but concentrate on direct, literal meanings.
- (3) Familiarize the eyes as much as possible with the Qur'anic language since this enables one to understand the meaning of the Qur'an without the help of interpretation. Feel its cohesive unity and begin to look at its message as a unified whole.
- (4) Scan the whole Qur'an from beginning to the end, comprehending direct, simple and literal meaning. The initial scanning of the whole Qur'an gives the general overall message of the Qur'an, as well as some idea of its style, diction, argument and rhetoric.
- (5) Understand the objectives precisely and set specific goals for the study. Decide on one concept at the time of searching. Type the prospective concept in the correspondence keyword box of the abstracting card.
- (6) Repeat the scanning with the eye of the expert not the superficial reader. Understand the meanings of the words and the message the Qur'an wants to tell at the level of the intelligence and knowledge we possess. Use that knowledge to make a critical evaluation by Qur'anic criteria.
- (7) Bring, by all means, your own knowledge to an understanding of the Qur'an on the issues it raises, and to understand the Qur'an in current idiom, but never use the Qur'an to confirm contemporary knowledge, preconceived ideas. Confine yourself usually to short commentaries and Arabic dictionaries whenever the need for personal detail of the Qur'an is required. Do not delve at this stage into long, elaborate exegetical works.
- (8) Read the whole Qur'an again with a much more detailed analysis. Understand every word of the Qur'an as if it was being revealed today. In this light, try to relate and apply it to real life today but be very aware that it is eternally valid and immutable and give no different message now. Use the exegetical, lexical and concordance references, but do not let them be a veil between the mind and the Qur'an.
- (9) Take up all the selections of the passages, portions and verses that best express the meanings of the concept of searching. Read the chosen selections again and again, concentrate on them and mark them in the judgement boxes indicating if they are relevant, partially relevant or a matter of doubt.

- (10) Study the selection in greater detail, following a systematic formulated thematic syllabus with reference to advanced exegesis, Arabic dictionaries and specialized books such as various readings, reasons of revelations, abrogation, etc.. Decide as part of the above analysis the position of the verse, and whether to retain or to alter it and mark this it in the judgement box.
- (11) Go to the documents for confirmation that the selected verse is approved with the suggested subject-term. If the document appears to be pertinent, then proceed to abstract it, write down the selected passage in the verse box, and confine a single document to a single box.
- (12) Abstract the relevant material in the abstract box. The process should be done without adding criticism, interpretation, comments, notes, ideas, or evaluation to the actual content, and without distinction as to who wrote the abstract, eliminating the introduction, redundancy and summaries, omitting history, known, old and amplified information, using the author's terminology, and make no substitution without good reason; expressing the homogeneity of thought and conveying the significant content and character of the original document.
- (13) Fill the bibliographic information located along the bottom of the abstract box, the date and sign the card of the applied service.

B. Indexers' guidelines

By this stage the indexers should have the collection of abstracting forms and the copies of terminology compiled and prepared in the initial stages. Their work at this stage is to reconsider the whole collection again and to compile it on the indexing cards. The main steps for this process are:

- (1) Reassemble the entire collection of abstract cards. Start an elementary classification of them according to their subject-term concepts.
- (2) Scan the basic prerequisite and inner participation and read the passage, comprehending its meaning, and recollect its broad contents.
- (3) Note down all major themes that can be discerned. Then note down the central theme in relation to the aim of indexing.
- (4) Divide the passage into such shorter portions which are thought to convey a single message.
- (5) Analyze the content of each group accurately and tag the concepts with appropriate index terms. No selective step should be taken at this stage.
- (6) Underline all words and phrases that are thought to be keywords and central to express the subject.

- (7) Find out what the important words mean and determine the exact meanings of the words.
- (8) Fill up the indexing card by writing down the keyword and the definition of the keyword, if applicable.
- (9) Review the underlined words in the abstract form as indicated in the Qur'anic verse and think how the words are interlinked and what unity and cohesion they have.
- (10) Decide which words express relationships to the keywords and mark this in the *RT* box.
- (11) Search with the aid of check-lists, authority files and subject menus for the words that express equivalence relationships to the keyword and mark these in the *USE* box.
- (12) Repeat the above three steps for each keyword underlined in the verse. Use a single index card for each keyword.
- (13) Repeat the process for all the other groups and for each abstract card and accumulate the resulting index terms and the corresponding index card.
- (14) Gather the whole collection of the indexing cards and classify the keywords into classes according to the strength of the relationship they have and give them a unique class number in the upper-hand side square of the card.
- (15) Review the card, sign the signature box and write down the date of the service.

C. Checkers' guidelines

The checkers' goal in the abstracting and indexing services is to eliminate errors, and to establish consistency and uniformity in style and presentation in the final revision. These functions should primarily be performed by the readers and the indexers but the checkers should post-check it. Checkers should use a different colour of ink from the one used by the readers and the indexers who should both use one standard colour. The process of checking is as follows:

- (1) Start checking the elements of the titles, the authors, the publishers etc. for factual accuracy and form. Write directly on the typescript rather than the margins.
- (2) Refer to the original documents and start checking the abstract for its proper meaning. On the same typescript either add or modify any important missed information. Also eliminate any unnecessary amplified information.

- (3) Sign the abstract form in the appropriate box and date it.
- (4) Move to the corresponding indexing cards for the subject-term indicated on the abstract form.
- (5) Review the definition of the keyword for any factual mistake.
- (6) Check the terms listed in the *USE* and *RT* boxes for their grammatical accuracy and diction.
- (7) Sign the index card in the appropriate box and date it.
- (8) With the final script before publication, check the form of terms, spellings, and cross-references.
- (9) Check the alphabetization and pay special attention to the alphabetical section.
- (10) Check the indenting and pay special attention to the hierarchical section.
- (11) Check the group arrangements and pay special attention to the facet section.
- (12) Check the typeface, size and style of the layout.

D. Programmers' guidelines

During the early design stages, data about current performance should be gathered and interviews should be conducted with interested parties. One or two program designers might take responsibility for the whole business. However, at the early stage of the work, the design team should discuss among themselves and generate a set of guidelines. Such guidelines could be arranged in the following steps:

- (1) Get a feel for the problem by sketching free-hand diagrams.
- (2) Prepare a preliminary list of transactions which the data model must support.
- (3) Prepare a preliminary list of attributes.
- (4) Write down a preliminary list of those entity types which can confidently be identified, and select the identifier of each of them. For each entity type, write down a table containing only its identifier.
- (5) Draw a flow chart diagram showing the known relationships between the entity types.
- (6) Make a preliminary check that your diagram will support the transaction, and amend the diagram, if necessary.

- (7) Add the menu selection formats, the use of the multiple windows and display formats for items and lists.
- (8) Design the screen layout, use of colour, highlighting and audible sounds.
- (9) Decide the character set of the keyboard, function keys, and cursor control devices.
- (10) Identify the wording of prompt and feedback messages, response times and display rates.
- (11) Test the screen in the company of the users, and redesign if necessary.

5.4. Scheme Policy

5.4.1. Exegetical instructions

The first aim of the compiler of the Qur'anic retrieval system is to understand the exact text as it stood and was explained by the Prophet and his companions. Many difficulties in the way of grasping the plain meaning of the verses are embodied in the character of the Qur'anic language itself and so the seeker has to refer to the exegetical scriptures.

A. Philological aspects

The first priority here is to choose the standardization of the Qur'an, the one most widespread in the Muslim world, that is Hafs, and to try to understand the verses by applying the following steps:

- (1) Place the words or the texts in their textual context and try to understand them intellectually.
- (2) Follow the direct literal meanings with reference to the preceding and succeeding text and if necessary the whole chapter.
- (3) Identify the unified thread behind the apparent fluctuations and randomneses of the themes.
- (4) Compare the apparent repetition of the words or the parallel verses.
- (5) Consult the exegetical references for authentic historical material and avoid the unnecessary judaica.
- (6) In the case of two or more different interpretations of the ambiguous phrases, pronominal references, and continuous statements use all the interpretations under separate headings and provide cross-reference to each in a footnote.

- (7) For two or more different interpretations regarding the dialects employ the one mentioned in the Qur'an, and provide the other interpretation(s) in a footnote.
- (8) In the case of two or more different readings use the one mentioned in the copy adopted by the service (that is Hafs) and give the other differences in a footnote.
- (9) Maintain the meanings closest to the literal and lexical with reference to the norm of readings and the marks of *aḥkâm al-tilâwah*.
- (10) Make continuous reference to the authentic exegesis to check other aspects of background knowledge that surround the verse.

B. Historical aspects

The principle for the use of historical knowledge in the retrieval system is to grasp all the surroundings and circumstances that accompanied the revelation, which therefore help in accurate compilation of the system. The criteria that should be followed for such a requirement are:

- (1) Put the verse under its literal meaning regardless of the occasion of its revelation, abrogation, or other historical background.
- (2) Confine the occasion of revelation, if there is any, to the specific verses and make references in the footnotes to such occasions.
- (3) Restrict the abrogations of the verses, if there are any, to the level of exceptions, particularizations, and clarifications of the verses and make references in the footnotes for such abrogations.
- (4) In the case of two contradictory statements (narrations), put the verse under its general heading and make reference to the two contradictory narrations.
- (5) Avoid *isrâiliyyât* (Judaica) wherever possible, and only refer to it if there is an approved Hadith supporting such knowledge.

C. Theological aspects

The interpretations should never be a veil between the Qur'an and the mind, and commentaries are only to be consulted to shed light on certain aspects. The selection of the verses from the Qur'an is only used to serve the needs of the present living time, whether on the level of scientific facts or that of social activity, and interlinked to the old interpretations on these aspects. For the present work, the compiler should carefully notice the differences that result

from the time-space paradox and not completely reject the commentaries. The methodological way to compile these guidelines is as follows:

- (1) Start with the semantics of the language, grammar and derivative, taking into account the meanings of the words at the time of the revelation.
- (2) Elucidate the real intent and import of the Qur'an and concentrate on the essential message rather than on complex juridical, theological, philosophical or scientific issues.
- (3) Prefer the apparent meaning to the hidden one. The latter is only to be considered in the absence of the former.
- (4) Bear in mind the relationship between the connected parts of a single verse and between the verses.
- (5) Exclude any metaphysical verse even if it sounds as if it is revealing in search of the scientific facts.
- (6) Clarify the meanings of the verses and the facts derived from the frame of the Arabic language, the laws and the cosmic sciences.
- (7) Maintain contact in the interpretation with the facts that were known at the time of the revelation, such as cosmic sciences, social norms and Arab History.

5.4.2. Indexing rules

Indexing rules in this information retrieval system are of three types: those guiding to data contained in the alphabetic section, known as keywords; those guiding to the location of the terms in the facet section, known as descriptors; and those guiding to the specific subject matter contained in the body of the system, known as subject headings.

A. Keywords

Keywords are the main parts in the retrieval system. For users they are identifiers and serve as the entry term for the subjects requested. However, for the purpose of identification, keywords should be selected as follows:

- (1) Keywords should target the specific branch of learning to be served and represented simultaneously the important concepts found in the Qur'an.
- (2) Keywords should express one idea or concept, excluding slang, jargon, coined terms and deprecated terminology.

- (3) Keywords should include all the synonyms, derived nouns and 2nd declination plurals of those words whose meanings coincide with established ones.
- (4) Keywords should be filed as much near uniterms as possible. Compound keywords should be reduced to equivalent uniterms, or else filed as direct entries (i.e. inversion entries are disallowed).

B. Descriptors

In general, all descriptors are keywords, and verify their characteristics. On the other hand, they serve to identify the verses listed in the retrieval system. In addition to their characteristics as keywords, descriptors should, therefore, have the following features:

- (1) Descriptors should reflect a level of specificity commensurate with that which represents discreet concepts.
- (2) Descriptors should be unambiguous and have identifiable meanings.
- (3) Descriptors should be evaluated as of high frequency use or comparatively represent concepts quantitatively within the Qur'an.
- (4) Descriptors should be evaluated as a high frequency use or acceptability precision within the discipline of science.
- (5) Descriptors should be emboldened throughout the system in order to distinguish them from the keywords.

C. Subject headings

Subject headings are the tags of the contents of the verses. They are placed under the descriptors in the retrieval system and derived from the context of the verse described. They should not be complicated, very specific or too general, though in all cases they should carry the natural rhyme and grammar formulation within themselves. Unlike keywords and descriptors, the construction of the subject headings violates the uniterm principle (i.e. subject headings have to be compound nouns). An imposed version is completely rejected, and the natural structure of the language is the concrete nature and norm for their use.

(i) Compound nouns

The construction of the compound nouns should be filed by using a noun connected with "wa و and" preceding the one indicated as descriptor. For example:

al-wafâh wa al-waṣiyyah الوفاة والوصية (Death and bequeathing)

This method allows the searcher to easily reach the concept and, on the other hand, it best fulfils the need of machine matching.

(ii) Synonyms

The problems of synonyms are avoided in the selection of the keywords by listing all the equivalences in the alphabetic section, because this is considered an essential part of searching for a term. On the other hand, for descriptors the criterion is the highest frequency use in the Qur'an or in the branch of learning respectively. The preferred term is distinguished by bold font. For example:

Synonyms

Unpreferred noun	<i>al-bayt</i>	البيت	
Unpreferred noun	<i>al-bayt al-ḥarâm</i>	البيت الحرام	
Unpreferred noun	<i>al-bayt al-'atîq</i>	البيت العتيق	
Preferred noun	<i>al-ka'bah</i>	الكعبة	(God's house)

Derived nouns

Unpreferred noun	<i>al-istikbâr</i>	الاستكبار	
Unpreferred noun	<i>al-takabbur</i>	التكبر	
Preferred noun	<i>al-kibr</i>	الكبر	(haughtiness)
Unpreferred noun	<i>al-kibriyâ'</i>	الكبرياء	

Irregular plural

Preferred noun	<i>al-ashhur</i>	الأشهر	(lunar months)
Unpreferred noun	<i>al-shuhûr</i>	الشهور	

(iii) Homographs

Homographs should be distinguished on three consecutive levels: initially by providing vowel signs for terms in their original forms.

Example: *al-dyn* الدين

To become	<i>al-dayn</i>	الدَيْن	(debt)
To become	<i>al-dîn</i>	الدين	(religion)

However, if the term is still not recognizable, a qualifying expression in brackets should be added to clarify the meaning.

Example: *al-fişâl* الفصال

To become	<i>al-fişâl (radâ'ah)</i>	الفصال (رضاعة)	(Weaning)
To become	<i>al-fişâl (talâq)</i>	الفصال (طلاق)	(Divorce)

Or, a supplementary clarifying expression should be attached to the term if the term is normally in such a form.

Example: *al-bayt* البيت

To become	<i>al-bayt al-ḥarâm</i>	البيت الحرام	(God's house)
To become	<i>al-bayt al-'atîq</i>	البيت العتيق	(God's house)

(iv) Singular-dual-plural

Words that happen to be used in their singular, dual, or plural either as keywords or as descriptors should be distinguished on two levels:

(1) The empirical approach where the Qur'anic terminology will be used.

* Use the singular form for words which happen to appear only in their singular forms.

Example:

Use *al-ard* الأرض not *al-ardûn* الأرضون (earths)

* Use the dual form for words which happen to appear only in their dual forms.

Example:

Use *al-thaqalân* الثقلان not *al-ins* الإنس (mankind)
and *al-jinn* الجن

* Use the plural form for words which happen to appear only in their plural form.

Example:

Use *al-albâb* الألباب not *labîb* لبيب (sensible)

* Use the mass noun for words which happen to appear in their singular, dual, and plural forms.

Example:

Use *al-shurûq* الشروق not *al-mashriq* المشرق (sunset)
nor *al-mashriqayn* المشرقين (two sunsets)
nor *al-mashâriq* المشارق (sunsets)

* Use the plural form for words which happen to appear in their singular, dual, and/or plural form, but which have no mass nouns.

Example:

Use *a'yun* أعين not *'ayn* عين (eye)
nor *'aynân* عينان (eyes)

Use *'uyûn* عيون not *'ayn* عين (spring of water)

The committee approach where the terminology of disciplines will be used.

* Use singular forms to convey these cases:

Proper names	eg. <i>Maryam</i>	مريم	(Mary)
Properties	eg. <i>al-ḥararah</i>	الحرارة	(heat)
Mass nouns	eg. <i>al-ṭalâq</i>	الطلاق	(divorce)
Materials (specific)	eg. <i>al-ḥadîd</i>	الحديد	(iron)
Objects (specific)	eg. <i>al-dharrâh</i>	الذرة	(tiny object)
Events (specific)	eg. <i>al-'adhâb</i>	العذاب	(torment)

* Dual should be used to convey all the cases that the singular and plural have failed to express.

* Plural should be used to convey the cases:

Genus	eg. <i>al-yatâmâ</i>	اليتامى	(orphans)
Materials (generic)	eg. <i>al-ḥijârah</i>	الحجارة	(stones)
Objects (generic)	eg. <i>al-nabât</i>	النبات	(plants)
Events (generic)	eg. <i>al-amrâḍ</i>	الأمراض	(diseases)

(v) Irregular plural

In general all types of irregular plural forms of the keyword should appear in the alphabetic section. However, preferred forms should be marked by bold font for those keywords that will appear as descriptors in the facet section. The criteria of selection should be as follows:

- * Irregular plurals that differ in meaning should be provided in the facet section with no distinction.

Example:

<i>al-ikhwân</i>	الإخوان	(friendship)
<i>al-ikhwah</i>	الإخوة	(blood or spiritual brotherhood)

- * Irregular plurals that differ in numbers but have the same meaning should be distinguished and provided in the facet section. Priority is given to the highest frequency in the Qur'an or the highest acceptability precision in the subject area.

Example:

unpreferred plural	<i>al-sawm</i>	الصوم	(fasting)
Preferred plural	<i>al-siyâm</i>	الصيام	

5.5. Displays

5.5.1. Printed display

The display that has been suggested and used in this study is the facet display with alphabetic display playing the role of the index. The reason for such a choice is that due to the unique construction of this system which serves as a thesaurus as well as a subject index indicating its contents. In this display all keywords appear in the alphabetical section, but only descriptors appear again in the facet section. The keywords that do not reappear in the facet section will serve as locators for the descriptors in the facet section. Both sections are integrated and complementary, but, if consulted separately, are incomplete. The link between the two sections is made by means of class number, which works as an indicator from the alphabetic section that includes the keywords to the facet section that includes the subject contents. In general there are two reasons for developing this particular kind of display:

- (1) The integrity between the alphabetic section and the facet section is able to demonstrate and organize a large vocabulary system with high efficiency.

- (2) The integrity between the alphabetic section and the facet section has the function of eliminating the problem of equivalences. All equivalent keywords are indicated by the same class number. Keywords that are interrelated hierarchically are considered related associatively.

A. Alphabetic section

The alphabetical section is the main part of the retrieval system. It is an accession key for the subject matter. In the alphabetical section, keywords should be arranged in word-by-word sequences. The order follows the alphabetization that is common in most Muslim countries (Figure 1-1). The order should be stated clearly at the beginning of the system to enable people who follow another order (e.g. Morocco) to know the exact arrangement of the entries. However, the treatment for numbers, articles, and mixed letters should be as follows:

- * The definite article *al-* اَلْ should not be taken into account unless it is a part of the word.
- * The letter *hamzah* ء that stands alone should precede *alif* ا in order.
- * The letter *hamzah* ء that accompanies the letters *alif* ا , *yâ'* ي , and *wâw* و should be treated as a part of these letters and precede these letters in order.
- * The letter *alif maddah* آ should be treated as one letter and precede *alif* ا in order.
- * Letters that are vowelless with *shaddah* ّ should be treated as single letters and follow the *dammah* in the same order as of simple vowels.
- * Letters that are similar in shape but different in meanings due to the vowels should be arranged thus *sukûn* ْ , *fathah* َ , *kasrah* ِ , *dammah* ُ , *shaddah* with *fathah* َّ , *shaddah* with *kasrah* ِّ , *shaddah* with *dammah* ُّ respectively.

B. Facet section

In the facet section broad concepts are classified under main classes. The classes are subdivided in turn into subclasses that provide clusters of descriptors, the latter being called subfacets. Descriptors under subfacets are more closely related to each other than those between neighbourhood facets. In the facet section descriptors are arranged according to the subject field served

and are completely attributable to the subject experts. The difference of arrangement that results is due to the subjectivity of the subject experts but does not affect the efficiency of the system, this is because the seeker should consult the alphabetical section before going to the required subject. For example:

Menstruation	01 04	<i>al-mahîd</i>	المحيض
Intercourse		<i>al-rafath</i>	الرفث

C. Hierarchical section

The role of the hierarchical section is to serve as a supplement to the facet section in the system. Descriptors that appear in the facet section reappear again in the same order in the hierarchical section. Subheadings under their specified descriptors are listed on one discrimination level shown as one dot . However, in the hierarchical section descriptors are marked in bold, while the subheadings are listed in a systematic KWIC arrangement, not alphabetic. The sequences they cover appear in the subject section. For example:

Intercourse	<i>al-rafath</i>	الرفث
. Intercourse and menstruation	. <i>al-rafath</i> wa <i>al-mahîd</i>	. الرفث والمحيض
. Intercourse and ordination	. <i>al-rafath</i> wa <i>al-ityân</i>	. الرفث والإتيان
. Intercourse and praying	. <i>al-rafath</i> wa <i>al-ṣalâh</i>	. الرفث والصلاة
. Intercourse and mosques	. <i>al-rafath</i> wa <i>al-mṣâjjid</i>	. الرفث والمساجد
. Intercourse and fasting	. <i>al-rafath</i> wa <i>al-ṣiyâm</i>	. الرفث والصيام
. Intercourse and pilgrimage	. <i>al-rafath</i> wa <i>al-ḥajj</i>	. الرفث والحج

D. Subject section

The subject section is the body of the retrieval system that contains all the subject matter (i.e. verses). The subject matter in this section is arranged according to its place in the facet section and not in alphabetic order. Verses under subject headings should be filed as follows:

- * Verses that contain a specific concept should all be listed under their tagged descriptors.
- * Verses should be subgrouped under their subject headings as the subject becomes more fragmentary.
- * Verses that are concrete and are not divided have no subject headings, but are listed directly under their descriptors.

- * Verses should be arranged under their subject headings according to the ascending order of the chapters and verse numbers.
- * Verses that have a double concept should be entered twice under both concepts and no cross-references need be included in this section.
- * Verses should be indicated by the parts most related to the headings and unrelated parts should be eliminated and replaced by dots.
- * Verses that have different verse numbers, but which follow a continuous concept should be listed together, with an indication of the numbers of the verses.

E. Cross-references

The aim of cross-references is to refer the searcher from the keywords in the alphabetical section to the exact location of the descriptors in the facet section and the body of the retrieval system. The location of the descriptor is indicated by a serial number. The serial number instruction consists of four numbers in two parts in which the first two digits refer to the facet number while the second two digits refer to the subfacet number. The serial number as a whole replaces the descriptor in the alphabetical section. This instruction applies to all keywords, and all the equivalent keywords have the same serial number and no preferred nouns are used to permit accession to the subject matter. Authorized descriptors are indicated by bold font. For example:

Synonyms

<i>al-bayt (al-Ka'bah)</i>	03 06	البيت (الكعبة)
<i>al-bayt al-ḥarâm</i>	03 06	البيت الحرام
<i>al-bayt al-'atîq</i>	03 06	البيت العتيق
<i>al-ka'bah</i>	03 06	الكعبة

Derived nouns

<i>al-istikbâr</i>	04 01	الاستكبار
<i>al-takabbur</i>	04 01	التكبر
<i>al-kibr</i>	04 01	الكبر
<i>al-kibriyâ'</i>	04 01	الكبرياء

Irregular plural

<i>al-ashhur</i>	16 02	الأشهر
<i>al-shuhûr</i>	16 02	الشهور

5.5.2. Screen display

The display that has been suggested and used in this study is the menu selection.

The following are the suggested instructures of that display (see Figure 5-8):

- * Provide a horizontal permanent menu for function operations with a minimum of two spaces between adjacent captions.
- * Provide ten function keys within the program to be used for immediate required processes. Do not exceed ten functions as the commercially used keyboards range from 10-14 function keys.
- * Provide a function key for help to the service at any point of the program. This key should give an easy, simple and direct instruction to cover the problem.
- * Provide a function key for interrupting the process through the use of UNDO reverse process.
- * Provide a function key to print the screen data or all the data that is required through a single retrieval process.
- * Provide a function key for page scrolling control, so that unwanted data can be skipped over with a fast scroll and more interesting data can be inspected with a slow scroll. In both cases ensure that a part of the previous display is visible at the top/bottom of the new page to provide the user with continuity.
- * Provide a function key for colour off/on, so that people who suffer from colour blindness can use the black and white screen.
- * Provide a function key for sound off/on, so that the people who are irritated at the clicking sound can use a silent service.
- * Provide a function key for mouse off/on, so that the people who are not used to the mouse control can use the *cursor* keys without effect.
- * Provide a function key to interrupt the program at any point without affecting the program loading and without a requirement to switch off the machine and reload the program.
- * Provide a window menu for the function operations.
- * Arrange items in the menu in alphabetical sequence.
- * Provide for selection of the items in the menu by highlighting the choice identified through the keyboard cursors or by mouse device.
- * Provide a multipath level for the items in the window menu.
- * Provide no more than five to six windows at one time which are related to the item requested.
- * Use overlapping windows instead of tiled windows.
- * Eliminate irrelevant windows automatically from the screen.

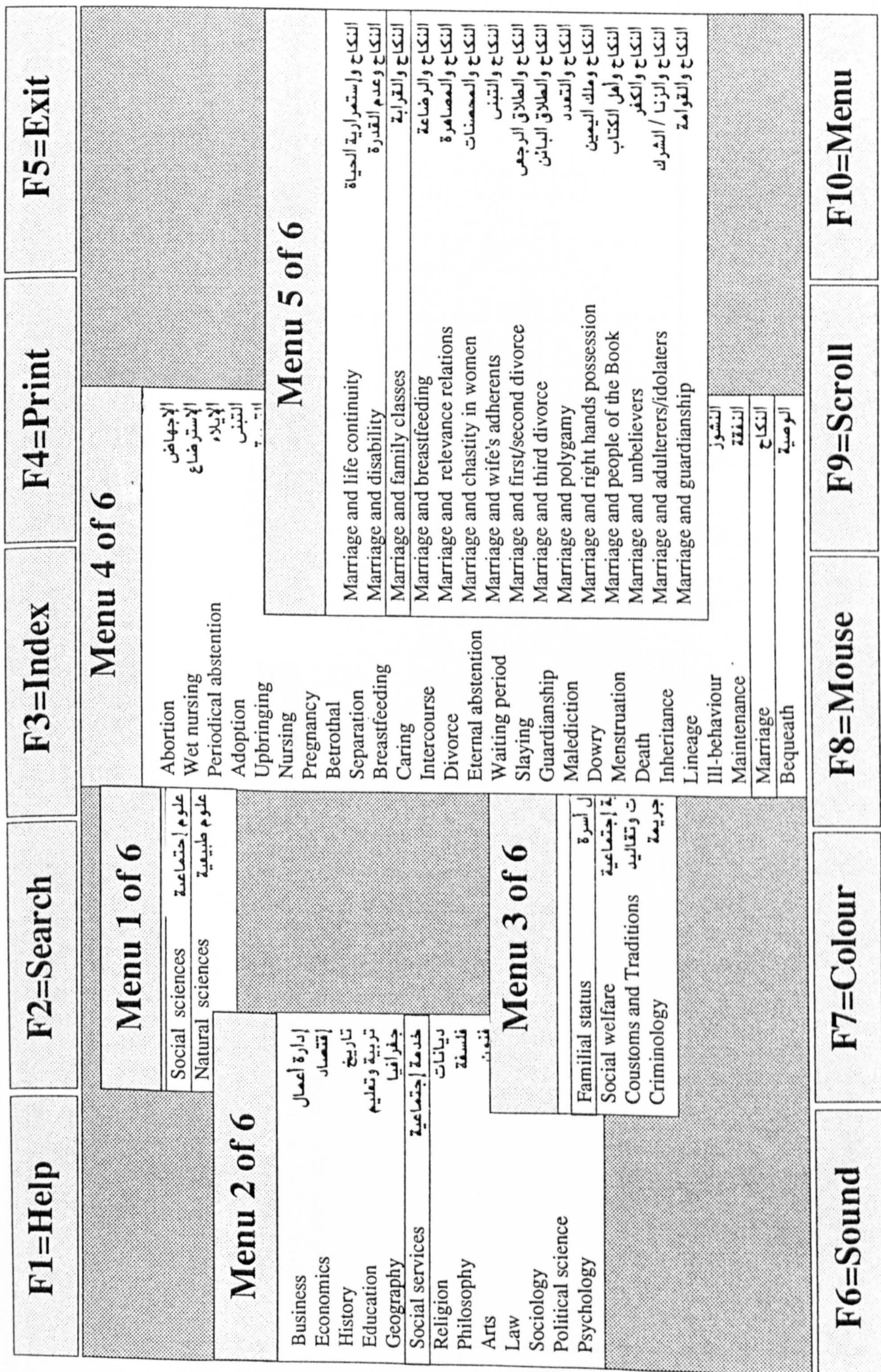


Figure 5-8: a screen display reading sample.

F1=Help	F2=Search	F3=Index	F4=Print	F5=Exit
Menu 6 of 6				
<p>Marriage and family classes</p> <p>"Forbidden you are your mothers, and your daughters, and your sisters, and your aunts (paternal and maternal) and your nieces" (4:23)</p> <p style="text-align: right;">النكاح والعراة «حُرِّمَتْ عَلَيْكُمْ أُمَّهَاتُكُمْ وَبَنَاتُكُمْ وَأَخَوَاتُكُمْ وَعَمَّاتُكُمْ وَوَخَالَاتُكُمْ وَبَنَاتُ الْأَخِ وَبَنَاتُ الْأُخْتِ» (٢٣:٤)</p>				
F6=Sound	F7=Colour	F8=Mouse	F9=Scroll	F10=Menu

- * Provide a menu map, as it is often difficult for the users to maintain a sense of position as they go deeper into a multipath menu. A note such as MENU 2 OF 4 is very helpful.
- * Permit one simple key action to return to the permanent menu. Use for instance, ESC key.
- * Provide a single menu on full screen to present the verses and surround the screen areas or draw explicit boundaries with a box.
- * The quantity of data per screen, including titles, headings, etc. should not cover more than 30 percent of the total area.
- * Provide clear headings and other ways of finding information to help user navigation within the display.
- * Use 18-24 points characters for headings and 10-12 points characters for normal work and subheadings.
- * Use double spacing for 18-24 points characters and single spacing for 10-12 points characters.
- * Use bold or distinguished colours for headings and subheadings.
- * Use the user's conventions for font shape and do not use different calligraphies unless it is necessary. It is much better to use the 'Uthmanic calligraphy.
- * Use justified margins from both sides, with equal spacing between the words.
- * Headings should be aligned to the right of the columns.
- * Tabulate the verses represented in three columns as the verse, the chapter number, and the verse number respectively. Columns should be separated by at least two blank spaces.
- * Provide numbers for pages and titles.

5.6. Test, Cost, And Production

5.6.1. Test and evaluation

Users often complain that they have difficulty in finding what they need precisely. This is due to the following reasons:

- * Users fail to read all the system instructions either because there are too many instructional options or because of the complex style of presentation.
- * Users choose to go directly to use, rather than spend time preparing themselves for the system.
- * Users assume that the system works like other systems familiar to them.

- * Users go to the system with no particular need in mind, but wishing instead to be able to select items at random.
- * Users look for a very specific item which the system does not provide.

These appear to be the main difficulties that face users in finding what they need. However, as a means of overcoming such problems, the following solutions are suggested:

- * The system's instructions should be short and simple so that they can be understood at a glance, if possible.
- * The system should be active and well formatted to provide easy access for those who do not wish to read the instructions.
- * The system should be designed to be familiar to users, by having some similarity to well-known systems, though it may also have its own characteristics.
- * The system should be highly specific in contents, as well as providing general access.

In light of the above, the system can be evaluated by two different approaches, both of them working in parallel. The first approach is to take a random sample of topics and check it with a subject expert. The latter should see if the various topics that are represented in keywords appear in the system or not. Then he should go through the system and check the validity of cross-references and the verses to which they apply. The second approach is to test the system with reference to the users themselves. This can be done by producing a semi-published draft which contains all that the final publication will include, and give the users free time to search the system and ask them to fill in a form based on the results of their test. The form should include the following questions:

- * The total number of items required?
- * The total number of relevant items retrieved?
- * The total number of irrelevant items retrieved?
- * The total number of items retrieved?
- * The total time taken?

On the basis of the above reported data, the system should be evaluated in terms of recall, precision and time thus:

$$\text{Recall ratio} = \frac{\text{The total number of relevant items retrieved}}{\text{The total number of items required}} \times 100$$

$$\text{Precision ratio} = \frac{\text{The total number of relevant items retrieved}}{\text{The total number of items retrieved}} \times 100$$

$$\text{Time taken per item} = \frac{\text{The total number of relevant items required}}{\text{The total time taken}}$$

This test could also be applied to the software system. Of course, it is impossible to evaluate the system, except under actual conditions of use. The acid test is to approach the right verse for the right request at an appropriate time, though the results of the above test could be taken as a good indication of the success or failure of the system.

5.6.2. Cost-effectiveness

Cost-effectiveness analysis is applicable to the design of the retrieval system, but it is rather difficult to apply it in this analogy. The reason for such a difficulty arises from the need to balance input costs against output efficiency. In considering cost-effectiveness, many different factors affect the decision of whether to emphasize the cost or the efficiency. However, the most important considerations relating to the subject are the following:

A. Controlled vocabulary versus uncontrolled vocabulary

A controlled vocabulary system saves time and effort at the output stage. Achieving this requires efforts in constructing the system and increases the cost at the output stage. However, a high quality system requires qualified personnel which increases the burden on the cost. By contrast, natural-language searching without the use of a controlled vocabulary reduces the cost, but puts a burden on the searcher and increases the time of retrieval. In addition, it reduces precision of the average search.

B. Specific keywords versus broad keywords

Specific contents are a requirement for all users. The more specific the keywords become the more precision the average search will achieve. The specificity, however, saves time and effort at the output, but creates more expense and effort at the time of input. The more highly qualified personnel, the more accurate the response will be. On the other hand, broad keywords may require abstracts to be included in the system to provide the user with specific contents and to improve the quality of the system, the time of searching and the level of consistency. Such an addition increases the efficiency, but puts a burden on the cost (i.e. the preparation and the editing of the abstracts).

C. Single-purpose versus Multi-purpose

On certain occasions the agency producing the retrieval system requires a multi-purpose rather than a single product (i.e. the system can be used in other services, or the participants who produce the retrieval system can be asked to serve the by-products). In terms of input cost a multi-purpose product saves costs in the short-term, though in many cases it affects the coverage quality and reduces the output efficiency. On the other hand, a single purpose product puts a burden on the input cost, increases the quality and hence the output efficiency, so in many cases it saves costs in the long run.

In view of the above, if we apply the extreme situation for the efficiency, i.e the system is entitled to have controlled vocabulary, specific keywords and single purpose, the cost is invariable with the output benefit but subject to the required quality of the retrieval system. Specifically speaking the quality of the retrieval system depends on three factors viz, the time allocated, the commitment of the participants and the material cost. As the first two factors can hardly be calculated, only the material cost will be subject to analysis. The material cost is a function of the following:

- * The furniture and the equipment costs,
- * The staff and training costs,
- * The technology costs, and
- * Other costs.

5.6.3. Production of print and software systems

The system is not complete until a tidy printed form of the work is produced for public use. This stage may involve both printed information as well as software publication. The former will be in the form of a book, and the latter will be in the form of a floppy disk, or on-line service. However, in both cases products should provide the following:

- * The purpose of the system and the additional features which this service provides compared with other services available in the other systems in the market.
- * The subject coverage, within an indication as to which are the core and which the peripheral fields.
- * The total number of indexing terms used, the number of verses covered, the type of exegesis used and the reason for using it, the readings adopted, and any other modification used.
- * The rules adopted regarding the choice and form of indexing terms.
- * Structures, displays, and cross-referencing with illustrated examples, wherever possible.
- * The meaning of all conventions and abbreviations and punctuation marks used in the system.
- * Acknowledgement of written sources used.
- * Personal acknowledgements referring to subject experts and others who may have assisted with the compilation.

5.6.4. Maintenance and updating

As is natural, putting the service into the user's hand is the acid test for the quality of the system, and of modifications required. This is the stage of maintenance and updating. The process of modification should be managed methodologically through the hands of one compiler, otherwise confusion will occur. In the maintaining and updating stage, terms which are missed have to be scrutinized by the experts and added with their necessary scope notes and relationships and should be in alphabetical order. Similarly, terms which are

misleading, or incorrectly used, have to be deleted, otherwise amendments should be included such as cases where simple changes are needed, like spelling or corrections from the singular to the plural form. When the final revision has been done, a new version of the system should be published in a public or academic magazine and become the nominative version as soon as possible.

5.7. Conclusion

The guidelines drawn in this chapter call for four concluding remarks: first, establishing a Qur'anic retrieval system requires professionalism, commitment, and belief in the purpose. Secondly, the success of the manual system is highly influenced by the level of compiling the vocabulary control. Thirdly, the success of the automatic system is directly proportional to the simplicity or complexity of the natural language in use. Fourthly, the cost and the evaluation of the retrieval system are based on the quality, the specificity and the purpose of the service.

CHAPTER SIX

TWO EXAMPLES OF QUR'ANIC RETRIEVAL SYSTEM: DISPLAY AND ORGANIZATION

Overview

It is perfectly common and practical to build up the information retrieval system with models to serve as a concrete base for the system. However, there are two aspects that should be highlighted in these models. First, these models form the base of an information network in which there is a large common set of keywords as well as numerous subfacets of descriptors that form the subject system itself. Secondly, the effectiveness of the subject-terms as a means of identifying and retrieving information depends upon the selection of these terms which together tag a subject provided in the system, and the organization of these terms in facets and subfacets provides a means of keeping track of interterm relationships. However, it is worth noting that although all the members of a facet are conceived of as related terms and the closest degree of relationship is presented to the members of subfacets, the degree and the type of these relationships vary from one subfacet to another.

The purpose of this chapter is to target the display and organization of terms that serve as models for the information retrieval system. The examples are based upon general principles which apply to any subject field, and for the maximum benefit of this study they are divided into two fundamental classes of knowledge viz, natural sciences and social sciences. One of the two selected examples is physics that represents a discipline of the natural sciences, while the marital and familial status is used as a multi-purpose example in social sciences, that is sociology, social services and law.

*Example
No. 1*

Physics

ALPHABETIC SECTION			القسم الهجائي
Sound	02 02	<i>al-ṣawt</i>	الصوت
Light	02 01	<i>al-ḍaw'</i>	الضوء
Electricity	02 03	<i>al-kahrabâ'</i>	الكهرباء
Matter	01 01	<i>al-mâddah</i>	المادة
Waves	02 05	<i>al-mawjât</i>	الموجات
Mechanics	02 06	<i>al-mîkânîkâ</i>	الميكانيكا
Relativity	02 04	<i>al-nisbiyyah</i>	النسبية
Measuring Units	01 02	<i>waḥadât al-qiyâs</i>	وحدات القياس

FACET SECTION			القسم الوجهي
	FACET 01	General	عام
Matter	01 01	<i>al-mâddah</i>	المادة
Measuring Units	01 02	<i>waḥadât al-qiyâs</i>	وحدات القياس
	FACET 02	Specific	خاص
Light	02 01	<i>al-ḍaw'</i>	الضوء
Sound	02 02	<i>al-ṣawt</i>	الصوت
Electricity	02 03	<i>al-kahrabâ'</i>	الكهرباء
Relativity	02 04	<i>al-nisbiyyah</i>	النسبية
Waves	02 05	<i>al-mawjât</i>	الموجات
Mechanics	02 06	<i>al-mîkânîkâ</i>	الميكانيكا

HIERARACHICAL SECTION			القسم الهرمي
Matter	<i>al-mâddah</i>	المادة	
. Duality of matter	. <i>izdiwâjîyyat al-mâddah</i>	. ازدواجية المادة	
. Density	. <i>al-kathâfah</i>	. الكثافة	
. Heat	. <i>al-ḥarârah</i>	. الحرارة	
. Atmospheric Pressure	. <i>al-ḍaght al-jawwî</i>	. الضغط الجوي	
Measuring Units	<i>waḥadât al-qiyâs</i>	وحدات القياس	
. Weight	. <i>al-wazn</i>	. الوزن	
. Length	. <i>al-ṭûl</i>	. الطول	
. Time	. <i>al-zaman</i>	. الزمن	
. Direction	. <i>al-ittijâh</i>	. الاتجاه	
Light	<i>al-ḍaw'</i>	الضوء	
Sound	<i>al-ṣawt</i>	الصوت	
Electricity	<i>al-kahrabâ'</i>	الكهرباء	
Relativity	<i>al-nisbiyyah</i>	النسبية	
Waves	<i>al-mawjât</i>	الموجات	
Mechanics	<i>al-mîkânîkâ</i>	الميكانيكا	
. Gravitational force	. <i>al-jâdhîbiyyah al-arḍiyyah</i>	. الجاذبية الأرضية	
. Weightlessness	. <i>in'idâm al-wazn</i>	. انعدام الوزن	

FACET 01 الوجه
SUBFACET 01 01 الوجه الفرعى

Matter

المادة

Duality of matter

إزدواجية المادة

"And of everything We created pairs, that perhaps you may remember." (51:49)

«وَمِنْ كُلِّ شَيْءٍ خَلَقْنَا زَوْجَيْنِ لَعَلَّكُمْ تَذَكَّرُونَ»
(٤٩:٥١)

Density

الكثافة

"He it is who has separated the two seas, this one is fresh, palatable to taste, and this one is saltish, piquant. And He set a barrier between them, and an insurmountable bar." (25:53)¹

«وَهُوَ الَّذِي مَرَجَ الْبَحْرَيْنِ هَذَا عَذْبٌ فُرَاتٌ وَهَذَا مِلْحٌ أُجَاجٌ وَجَعَلَ بَيْنَهُمَا بَرْزَخًا وَحِجْرًا مَّحْجُورًا» (٥٣:٢٥) ١

"He let forth the two seas to meet together, between them a barrier they cannot surpass." (55:19-20)

«مَرَجَ الْبَحْرَيْنِ يَلْتَقِيَانِ، بَيْنَهُمَا بَرْزَخٌ لَا يَبْغِيَانِ» (٢٠-١٩:٥٥)

Heat

الحرارة

"(He) who has made fire for you from the green trees and, behold, you may kindle flame." (36:80)

«الَّذِي جَعَلَ لَكُمْ مِنَ الشَّجَرِ الْأَخْضَرِ نَارًا فَإِنَّا أَنْتُمْ مِنْهُ تُوقِدُونَ» (٨٠:٣٦)

¹ The Arabic word *al-bahrayn* (two seas) is a reference to the two sources of fresh water and salt seas. However, the great masses of fresh water in rivers, lakes, ponds and underground springs are all one, and the great salt ocean with its seas and gulfs is also all one. The separation between these two masses during their meeting could possibly be due to the difference in their densities.

١ تعود كلمة البحرين في هذه الآية إلى المصدرين الماء العذب والماء المالح. ويتمثل الماء العذب في كتلة الماء المنساب من الأنهار والبحيرات والبرك والعيون، بينما يتمثل الماء المالح في كتلة الماء المتواجد في المحيطات والبحار والخلجان. وفي حالة إلتقاء هاتين الكتلتين ينتج عادة فاصل يحتمل مرجع نشأته إلى اختلاف الكثافة بين الكتلتين.

Atmospheric Pressure

الضغط الجوي

"But whoever God desires to guide, He expands his breast to Islam. And whoever He desires to lead into perversity, He makes his breast narrow, constricted as if he were ascending to heaven" (6:125)²

«فَمَنْ يُرِدِ اللَّهُ أَنْ يَهْدِيَهُ يَشْرَحْ صَدْرَهُ لِلْإِسْلَامِ
وَمَنْ يُرِدْ أَنْ يُضِلَّهُ يَجْعَلْ صَدْرَهُ ضَيِّقًا حَرَجًا
كَأَنَّمَا يَصْعَدُ فِي السَّمَاءِ» (١٢٥:٦) ٢

Measuring Units

وحدات القياس

Weight

الوزن

"Surely God shall not wrong you the weight of an atom. And if it be a good deed, He shall multiply it and shall give from Himself a vast wage." (4:40)³

«إِنَّ اللَّهَ لَا يَخْلِفُ مِثْقَالَ نَرَّةٍ وَإِنْ تَكُ حَسَنَةً
يُضَاعِفْهَا وَيُؤْتِ مِنْ لَدُنْهُ أَجْرًا عَظِيمًا» (٤:٤) ٣

² This is the condition of a person who is climbing and finds it difficult to breath for a lack of Oxygen in the upper level of atmosphere.

^٢ تشير هذه الآية إلى حالة الشخص الذي يصعد إلى عنان السماء فيجد صعوبة في التنفس بسبب تناقص كميات الأكسجين المصاحب للارتفاع إلى طبقات الجو العليا.

³ The implication of the word atom as referred to in the verses (4:40), (10:61), (34:3), (34:22), and (99:7-8), in the Arabic language is *dharrah*. The latter has been misused by most contemporary authors who rely on their self-understanding of the word as known in modern physics rather than as a reference to the lexical meaning and the historical background to the coining of this word. Lexically, the word means the red ant (pl. *dharr*), the ant's head or a grain of mustard seed as indicated by most of the early commentators. Hence the verses (4:40), (10:61), (34:3), (34:22) and (99:7-8) mean that God never treats unjustly mankind by any means even by the weight of the smallest thing that was ever thought. Historically, the discovery of atomic physics falls within the modern technical revolution. The Arabization of the word "atom" has lead to the Arabic word *dharrah*, a fact which leads to the contemporary reference to the atom as identical to the one mentioned in the Qur'an.

^٣ تعود كلمة نرة كما وردت في نص الآيات (٤:٤)، (١٠:٦١)، (٣:٣٤)، (٢٢:٣٤)، (٧:٩٩-٨) إلى معناها الدارج المستعمل في اللغة الإنجليزية والمعروف بإسم atom . والجدير بالذكر أن كثيرا من الكتاب المعاصرين يرجعون في كتاباتهم إلى فهمهم الخاص بذكر هذه الكلمة بمدلولها كما ورد في الفيزياء الحديثة. وبهذا المفهوم فإن هؤلاء الكتاب يعارضون حقيقتين لغوية وتاريخية. فالحقيقة اللغوية كما وردت في كتب المفسرين لمعنى كلمة نرة (الجمع نر) هو الإشارة إلى النملة الحمراء أو رأس النملة أو حبة الخردل. وعليه فإن المعنى العام لكلمة نرة الواردة في سياق الآيات (٤:٤)، (١٠:٦١)، (٣:٣٤)، (٢٢:٣٤)، (٧:٩٩-٨) يدل على أن الله لا يقاضى بظلم أي إنسان حتى ولو كان مقدار وزن أصغر شيء يمكن تصوره أما الحقيقة التاريخية فتعود إلى أن كلمة نرة هذه هي نتاج لعملية تعريب لحقت بالكلمة الإنجليزية atom بمدلولها في علم الفيزياء الذرية اللاحق بالثورة التكنولوجية الحديثة. وقد كان لعملية التعريب هذه الأثر الأول لعملية المزج الذي يقع به هؤلاء الكتاب.

"... And not so much as the single weight of an atom in the earth or in the heaven is hidden from your Lord, neither anything smaller than that nor greater, but in a lucid Book." (10:61)

«... وَمَا يَغْزُبُ عَنْ رَبِّكَ مِنْ مِثْقَالِ ذَرَّةٍ فِي الْأَرْضِ وَلَا فِي السَّمَاءِ وَلَا أَصْفَرَ مِنْ نَلِكٍ وَلَا أَكْبَرَ إِلَّا فِي كِتَابٍ مُبِينٍ» (١٠:٦١)

"And We shall set up the just balances for the Day of Resurrection, so that no single soul will be wronged in any way. And if it be the weight of one grain of mustard seed, We shall bring it forth...." (21:47)

«وَنَضَعُ الْمَوَازِينَ الْقِسْطَ لِيَوْمِ الْقِيَامَةِ فَلَا تُخْلَمُ نَفْسٌ شَيْئًا وَإِنْ كَانَ مِثْقَالَ حَبَّةٍ مِنْ حَرْدَلٍ آتَيْنَا بِهَا وَكَفَى بِنَا حَاسِبِينَ» (٢١:٤٧)

"... Not even the weight of an atom either in the heaven or in the earth escapes Him; neither anything less than that nor bigger, but in a lucid Book." (34:3)

«... لَا يَغْزُبُ عَنْهُ مِثْقَالُ ذَرَّةٍ فِي السَّمَوَاتِ وَلَا فِي الْأَرْضِ وَلَا أَصْفَرَ مِنْ نَلِكٍ وَلَا أَكْبَرَ إِلَّا فِي كِتَابٍ مُبِينٍ» (٣:٣٤)

"Say: 'Invoke whoever you associate with God. They possess not even an atom's weight either in the heavens or in the earth, nor have they any share in either, nor has He any helper from among them.'" (34:22)

«قُلْ ادْعُوا الَّذِينَ زَعَمْتُمْ مِنْ دُونِ اللَّهِ لَا يَمْلِكُونَ مِثْقَالَ ذَرَّةٍ فِي السَّمَوَاتِ وَلَا فِي الْأَرْضِ وَمَا لَهُمْ فِيهَا مِنْ شَرْكٍ وَمَا لَكُمْ مِنْهُمْ مِنْ هَالِكٍ» (٢٢:٢٢)

"So, whoever has done an atom's weight of good, will behold it. And whoever has done an atom's weight of evil, will behold it." (99:7-8)

«فَمَنْ يَعْمَلْ مِثْقَالَ ذَرَّةٍ خَيْرًا يَرَهُ، وَمَنْ يَعْمَلْ مِثْقَالَ ذَرَّةٍ شَرًّا يَرَهُ» (٧-٨:٩٩)

Length

الطول

"Take him, and fetter him, then cast him into al-Jahîm (the Blaze), and insert him in a chain of seventy cubits length." (69:30-32)

«خُذُوهُ فَغُلُّوهُ، ثُمَّ الْجَحِيمَ صَلُّوهُ، ثُمَّ فِي سِلْسِلَةٍ ذَرْعُهَا سَبْعُونَ ذِرَاعًا فَاسْلُكُوهُ» (٣٠-٣٢:٦٩)

Time

الزمن

"They ask you of the crescent moons. Say: 'They are times fixed for mankind and for pilgrimage.' . . ." (2:189)

«يَسْأَلُونَكَ عَنِ الْأَمْثِلِ قُلْ مِنْ مَوَاقِيتِ لِلنَّاسِ وَالْحَجِّ» (٢:١٨٩)

"He is the splitter of the dawn, and He has made the night for repose, and the sun and the moon for computing (time)...." (6:96)

«فَالِقُ الْإِصْبَاحِ وَجَعَلَ اللَّيْلَ سَكَنًا وَالشَّمْسَ وَالْقَمَرَ حَسْبَانًا» (٦:٩٦)

"It is He who has made the sun a shining and the moon a light, and has ordained it in phases that you may know the number of years and the reckoning" (10:5)

«هُوَ الَّذِي جَعَلَ الشَّمْسُ ضِيَاءً وَالْقَمَرَ نُورًا
وَقَدَرَهُ مَنَازِلَ لِتَعْلَمُوا عَدَدَ السِّنِينَ وَالْحِسَابَ
(٥:١٠)

"And We have made the night and the day as two signs, then We effaced the sign of the night, and made the sign of the day to give sight that you may seek bounty from your Lord, and that you may know the number of the years and the reckoning" (17:12)

«وَجَعَلْنَا اللَّيْلَ وَالنَّهَارَ آيَاتَيْنِ فَمَحَوْنَا آيَةَ اللَّيْلِ
وَجَعَلْنَا آيَةَ النَّهَارِ مُبْصِرَةً لِّتَبْتَغُوا فَضْلًا مِّنْ
رَّبِّكُمْ وَلِتَعْلَمُوا عَدَدَ السِّنِينَ وَالْحِسَابَ
(١٢:١٧)

"And they lingered in their cave three hundred years and nine over." (18:25)⁴

«وَلَبِثُوا فِي كَهْفِهِمْ ثَلَاثَ مِائَةٍ سِنِينَ وَازْدَادُوا
تِسْعًا» (٢٥:١٨)

Direction

الاتجاه

"And it is He who has made the stars for you to be guided thereby in the darkness of the land and the sea" (6:97)

«وَهُوَ الَّذِي جَعَلَ لَكُمْ النُّجُومَ لِتَهْتَدُوا بِهَا فِي
ظُلُمَاتِ الْبَرِّ وَالْبَحْرِ» (٩٧:٦)

⁴ According to al-Qurtubî (*op.cit.* vol.X, pp.386-387) the number nine as mentioned literally in the verse is not definite, whether it is hours, days, week, months, or years, though he asserted that according to the norm of the language, the apparent meaning is nine years. Al-Qurtubî, however, also states that the number three hundred is calculated by the actual number of years according to the solar calendar, but since the speech is directed to the Prophet Muhammad whose calculation was by lunar calendar, the nine years difference was added. The difference makes exactly 0.03 every solar year which in terms of days equals to 10.8 days every year. On the other hand, Muslims establish their calendar by the 1st Muharram of the year in which the prophet made his migration from Mecca to Madina. This equally corresponds to the year 622 A.D. By summing up the above calculations, the equation of transformation from A.H. to A.D. is:

$$\begin{aligned} \text{A.D.} &= \text{A.H.} - 0.03 \text{ A.H.} + 622. \\ \text{A.D.} &= 0.97 \text{ A.H.} + 622. \end{aligned}$$

٤ طبقاً لما أورده القرطبي في تفسيره أنه قال مصداقاً لقوله «وازدادو تسعاً»، لم يدر الناس أم ساعات أم أيام أم جمع أم شهور أم أعوام، إلا أنه ظاهر كلام العرب المفهوم منه أنها أعواماً. ويضيف القرطبي رواية عن النقاش أنهم لبثوا ثلثمائة سنة شمسية بحساب الأيام، فلما كان الإخبار هنا للنبي العربي نكرت التسع، إذ المفهوم عنده من السنين القمرية وهذه الزيادة هي ما بين الحسابين. (انظر القرطبي، المرجع السابق، مج ١٠، ص ص ٢٨٦-٢٨٧). من هذه السلمة الإلهية يمكن حساب هذه الزيادة بفارق قيمته ٠.٠٣ لكل عام شمسي، وهو ما يقابل بالأيام ١٠.٨ يوم. فإننا كان في الاعتبار أن المسلمون يبدؤون حسابهم للتقويم الهجري بداية من شهر محرم الموافق لهجرة الرسول من مكة إلى المدينة وهذا يوافق العام ٦٢٢ ميلادي، فإنه بجمع هاتين الأطروحتين يمكن أن نستنتج معادلة للتحويل من التقويم الميلادي إلى التقويم الهجري كالآتي:-

$$\begin{aligned} \text{ت م} &= \text{ت هـ} - ٠.٠٣ \text{ ت هـ} + ٦٢٢ \\ \text{ت م} &= \text{ت هـ} + ١٧ \text{ ت هـ} + ٦٢٢ \end{aligned}$$

"And waymarks; and by the stars they are guided." (16:16)

«وَعَلَّمَتِ وَبِالنَّجْمِ هُمْ يَهْتَدُونَ» (١٦:١٦)

FACET	02	الوجه
SUBFACET	02 01	الوجه الفرعى

Light

الضوء

"And those who disbelieve, their deeds are like a mirage on a plain which the thirsty thinks to be water, until, when he comes near to it, he finds it is nothing;" (24:39)

«وَالَّذِينَ كَفَرُوا أَعْمَالُهُمْ كَسَرَابٍ بِقِيعَةٍ يَحْسَبُهُ
الظَّمْآنُ مَاءً حَتَّىٰ إِذَا جَاءَهُ لَمْ يَجِدْهُ شَيْئًا
« » (٢٩:٢٤)

"Have you not seen that God drives the clouds, then gathers them together, then makes them in layers, then you see the rain issuing from the midst of them. And He causes to descend from heaven mountains wherein there is hail, then He smites with it whom He wills, and averts it from whom He wills. The brightness of its lightning almost snatches away the sight." (24:43)

«أَلَمْ تَرَ أَنَّ اللَّهَ يُرْسِلُ سَحَابًا ثُمَّ يُؤَلِّفُ بَيْنَهُمْ
يَجْعَلُهُ رُكَامًا فَتَرَى الْوَدْقَ يَخْرُجُ مِنْ خِلَالِهِ
وَيُنزِلُ مِنَ السَّمَاءِ مِنْ جِبَالٍ فِيهَا مِنْ بَرَدٍ
فَيُصِيبُ بِهِ مَن يَشَاءُ وَيَصْرِفُهُ عَن مَّن يَشَاءُ
يَكَادُ سَنَا بَرْقِهِ يَذْهَبُ بِالْأَبْصَارِ» (٢٤:٤٣)

FACET	02	الوجه
SUBFACET	02 02	الوجه الفرعى

Sound

الصوت

"Or as a rain-storm from heaven, wherein is darkness, thunder and lightning, they thrust their fingers into their ears because of thunderclaps, fearing death" (2:19)

«أَوْ كَصَيْبٍ مِّنَ السَّمَاءِ فِيهِ ظُلُمَاتٌ وَرَعْدٌ وَبَرْقٌ
يَجْعَلُونَ أَصْبِعَهُمْ فِىٔ أُنَاقِهِمْ مِّنَ الصَّوَاعِقِ حَذَرَ
الْمَوْتِ » (١٩:٢)

". . . . And the thunder extols His praise, and the angels are in awe of Him. And He sends the thunderbolts, then He smites with them whom He wills" (13:13)

«وَيَسْبِحُ الرَّعْدُ بِحَمْدِهِ وَالْمَلَائِكَةُ مِنْ خِيفَتِهِ
وَيُرْسِلُ الصَّوَاعِقَ فَيُصِيبُ بِهَا مَن يَشَاءُ »
(١٣:١٣)

FACET 02 الوجه
SUBFACET 02 03 الوجه الفرعى

Electricity

الكهرباء

"Have you not seen that God drives the clouds, then gathers them together, then makes them in layers, then you see the rain issuing from the midst of them. And He causes to descend from heaven mountains wherein there is hail, then He smites with it whom He wills, and averts it from whom He wills. The brightness of its lightning almost snatches away the sight." (24:43)⁵

«أَلَمْ تَرَ أَنَّ اللَّهَ يَرْجِي سَحَابًا ثُمَّ يُؤَلِّفُ بَيْنَهُمْ
يَجْعَلُهُ رُكَّامًا فَتَرَى الْوَدْقَ يَخْرُجُ مِنْ خِلَالِهِ
وَيُنزِلُ مِنَ السَّمَاءِ مِنْ جِبَالٍ فِيهَا مِنْ بَرَدٍ
فَيُصِيبُ بِهِ مَنْ يَشَاءُ وَيَصْرِفُهُ عَنِ مَنْ يَشَاءُ
يَكَادُ سَنَا بَرْقِهِ يَذْهَبُ بِالْأَبْصَارِ» (٤٣:٢٤) ٥

FACET 02 الوجه
SUBFACET 02 04 الوجه الفرعى

Relativity

النسبية

". . . . And truly a day with your Lord is as a thousand years by your counting." (22:47)⁶

« وَإِنَّ يَوْمًا عِنْدَ رَبِّكَ كَأَلْفِ سَنَةٍ مِمَّا
تَعُدُّونَ » (٤٧:٢٢) ٦

⁵ This verse which should be read together with (30:48) gives a brief picture of two types of cloud layers; heavy and spreadout layers. According to 24:43 the rain is formed from the heavy layered since electrical discharge occurs only among them.

^٥ بقراءة هذه الآية مجتمعة مع نص ما ورد في الآية (٤٨:٣٠) يمكن الوصول إلى استنتاج نوعين في طبقات السحاب، الطبقة الثقيلة والطبقات المنتشرة. بالرجوع إلى آية (٤٣:٢٤) يتكون المطر في الطبقات الثقيلة وذلك لحدوث تفريغ الشحنات الكهربائيين هذه الطبقات.

⁶ The three statements in (22:47), (32:5) and (70:3-4) could possibly bear the meaning of relative time that would pass more slowly for a person travelling in the space near the speed of light, compared to a person who was stationary in relation to the one travelling.

^٦ تشير النصوص الثلاثة الواردة في الآيات (٤٧:٢٢) (٥:٣٢) (٤-٣:٧٠) إلى نسبية الزمن والذي قد يتحمل المعنى المجازي لشخص منتقل في الفضاء بسرعة الضوء فيشعر ببطء الزمن بالنسبة لشخص آخر ملاحظ في حالة ثبات.

"He directs the affair from the heaven to the earth, then it ascends to Him in a day whose measure is a thousand years of what you reckon." (32:5)

«يُدَبِّرُ الْأَمْرَ مِنَ السَّمَاءِ إِلَى الْأَرْضِ ثُمَّ يَرْجِعُ
إِلَيْهِ فِي يَوْمٍ كَانَ مِقْدَارُهُ أَلْفَ سَنَةٍ مِمَّا
تَعُدُّونَ» (٥:٣٢)

"To Him the angels and the Spirit ascend in a day, the measure of which is fifty thousand years." (70:3-4)

«تَرْجِعُ الْمَلَائِكَةُ وَالرُّوحُ إِلَيْهِ فِي يَوْمٍ كَانَ
مِقْدَارُهُ خَمْسِينَ أَلْفَ سَنَةٍ» (٤:٧٠)

FACET	02	الوجه
SUBFACET	02 05	الوجه الفرعى

Waves

الموجات

"Or like darkness on a deep sea covered by waves upon waves, above which are clouds. Darkness accumulated layer upon layer, that when man puts forth his hand, he can scarcely see it." (24:40)

«أَوْ كظلماتٍ في بحرٍ لجّيٍّ يفتشهُ مَوْجٌ مِّنْ
فَوْقِهِ مَوْجٌ مِّنْ فَوْقِهِ سَحَابٌ ظَلَمَتُ بَعْضُهَا فَوْقَ
بَعْضٍ إِنَّا أَخْرَجَ يَدَهُ لَمْ يَكُنْ يَرُهَا»
(٤٠:٢٤)

FACET	02	الوجه
SUBFACET	02 06	الوجه الفرعى

Mechanics

الميكانيكا

Gravitational force

الجاذبية الأرضية

"God is He who has raised up the heavens without pillars you can see" (13:2)⁷

«اللَّهُ الَّذِي رَفَعَ السَّمَوَاتِ بِغَيْرِ عَمَدٍ تَرَوْنَهَا
. . . .» (٢:١٣) ٧

⁷ Generally speaking the word *samâ'* (heaven) means anything that is high. Hence it may mean the earth spheres and all the outer space. According to al-Qurtubî (*ibid.*, vol.IX, p.279) according to one interpretation of the literal meaning of the verse the heavens above are held by pillars but they cannot be seen. Another interpretation also narrated by al-Qurtubî is that the heavens are held without any pillars at all. This last interpretation is more

٧ بصفة عامة تعود كلمة سماء على أى شئ عال وهذا قد يتضمن الغلاف الجوى للأرض ومحيطها الخارجى تبعا لما ورد عن القرطبي. (سبق نكره، مج ٩٠، ص ٢٧٩) وبالرجوع لأحد التفسيرات اللغوية للفظ الآية فنجد قولان أحدهما: أنها مرفوعة بغير عمد على الإطلاق، والثانى أن لها عمد ولكن لا يرى. وبمقارنة التفسيران يمكن القول أن الأول أكثر قبولا وذلك

"Have you not seen that God has subjected to you all that is in the earth, and the vessels that run upon the sea by His behest. And that He holds back the heaven lest it should fall on the earth, save by His leave?" (22:65)

«أَلَمْ تَرَ أَنَّ اللَّهَ سَخَّرَ لَكُمْ مَّا فِي الْأَرْضِ وَأَنفَلَكَ
تَجْرِي فِي الْبَحْرِ بِأَمْرِهِ وَيُمْسِكُ السَّمَاءَ أَنْ تَقَعَ
عَلَى الْأَرْضِ إِلَّا بِإِذْنِهِ» (٦٥:٢٢)

"He has created the heavens without pillars that you can see; and He cast on the earth mountains, lest it should sway with you" (31:10)

«خَلَقَ السَّمَوَاتِ بِغَيْرِ عَمَدٍ تَرَوْنَهَا وَأَلْقَى فِي
الْأَرْضِ رَوَاسِيَ أَنْ تَمِيدَ بِكُمْ» (١٠:٣١)

"Surely God holds the heavens and the earth lest they should wither away, for if they were to wither away, no one could hold them after Him. . . ." (35:41)

«إِنَّ اللَّهَ يُمْسِكُ السَّمَوَاتِ وَالْأَرْضَ أَنْ تَزُولَا وَلَئِن
زَالَتَا إِن أَمْسَكَهُمَا مِنْ أَحَدٍ مِّن بَعْدِهِ» (٤١:٣٥)

Weightlessness

إنعدام الوزن

". . . . for whoever associates with God, it is as through he has fallen from heaven, then birds snatch him away; or the wind has blown him to a distance place." (22:31)"⁸

« وَمَنْ يُشْرِكْ بِاللَّهِ فَكَأَنَّمَا خَرَّ مِنْ
السَّمَاءِ فَتَخَلَّفَهُ الطَّيْرُ أَوْ تَهَوَّى بِهِ الرِّيحُ فِي
مَكَانٍ سَحِيقٍ» (٢١:٢٢) ٨

convincing as the statements of (22:65), (31:10), and (35:41) provide that it is God who holds the heavens lest they should fall on earth. However, whichever of the two interpretations is adopted they still support the idea of the existence of gravitational force.

بالرجوع لنص الآيتين (٦٥:٢٢) و (٤١:٣٥) والذان يعطيان مدلول أن الله هو الذي يقبض السماوات أن يقعن على الأرض. وفي كلتا الحالتين فإن كلا التفسيران يعطى الاستدلال على حقيقة وجود الجاذبية الأرضية.

⁸ In this verse there is a possible reference to the state of weightlessness and the general condition of a person in the cosmos above the earth's atmospheric level.

^٨ في هذه الآية احتمال بالإشارة إلى حالة إنعدام الوزن والوضع العام لشخص متواجد في الفراغ الطارح للمكرة الأرضية.

*Example
No. 2*

Family

ALPHABETIC SECTION

القسم الهجائي

Abortion	02 01	<i>al-ijhâd</i>	الإجهاض
Inheritance	03 01	<i>al-irṭh</i>	الإرث
Wet nursing	02 03	<i>al-istirdâ'</i>	الإسترضاع
Maintenance	01 02	<i>al-infâq</i>	الإتفاق
Periodical abstention	01 05	<i>al-llâ'</i>	الإيلاء
Adoption	02 02	<i>al-tabannî</i>	التبني
Upbringing	02 04	<i>al-tarbiyah</i>	التربية
Inheritance	03 01	<i>al-tarikah</i>	التركة
Intercourse	01 04	<i>al-jimâ'</i>	الجماع
Nursing	02 03	<i>al-ḥadânah</i>	العضانة
Pregnancy	02 03	<i>al-ḥaml</i>	الحمل
Menstruation	01 04	<i>al-ḥayḍ</i>	الحيض
Betrothal	01 01	<i>al-khitbah</i>	الخطبة
Separation	01 06	<i>al-khul'</i>	الطلع
Breastfeeding	02 03	<i>al-radâ'ah</i>	الرضاعة
Caring	01 03	<i>al-ri'âyah</i>	الرعاية
Intercourse	01 04	<i>al-rafath</i>	الرفث
Marriage	01 01	<i>al-zawâj</i>	الزواج
Dowry	01 02	<i>al-ṣadâq</i>	الصداق
Divorce	01 06	<i>al-ṭalâq</i>	الطلاق
Eternal abstention	01 05	<i>al-zihâr</i>	الظهار
Waiting period	02 02	<i>al-'iddah</i>	العدة
Weaning	02 03	<i>al-fiṣâl (radâ'ah)</i>	الفصال (رضاعة)
Divorce	01 06	<i>al-fiṣâl (ṭalâq)</i>	الفصال (طلاق)
Weaning	02 03	<i>al-fiṣâm (radâ'ah)</i>	الفصام (رضاعة)
Weaning	02 03	<i>al-fiṭâm</i>	الفطام
Slaying	02 01	<i>al-qatl</i>	القتل
Guardianship	01 03	<i>al-qawâmah</i>	القوامة
Adoption	02 02	<i>al-kafâlah (tabanni)</i>	الكفالة (تبني)
Inheritance	03 01	<i>al-kalâlah</i>	الكفالة
Malediction	02 02	<i>al-li'ân</i>	اللعان
Menstruation	01 04	<i>al-mahṭâ</i>	المحيض
Dowry	01 02	<i>al-mahr</i>	المهر
Death	01 06	<i>al-mawt</i>	الموت
Inheritance	03 01	<i>al-mirâth</i>	الميراث
Lineage	02 02	<i>al-nasab</i>	النسب
Ill-behaviour	01 05	<i>al-nushûz</i>	النشوز
Maintenance	01 02	<i>al-nafaqah</i>	النفقة
Marriage	01 01	<i>al-nikâḥ</i>	النكاح
Slaying	02 01	<i>al-wa'd</i>	الوعد
Bequeath	03 01	<i>al-waṣiyyah</i>	الوصية
Intercourse	01 04	<i>al-wai'</i>	الوطء
Death	01 06	<i>al-wafâh</i>	الوفاة

FACET SECTION		القسم الوجهي	
FACET 01	Husband-Wife relationship	علاقة الزوج - الزوجة	
Betrothal Marriage	01 01	<i>al-khiḅbah</i> <i>al-nikāḥ</i>	الخطبة النكاح
Dowry Maintenance	01 02	<i>al-mahr</i> <i>al-naḥaqah</i>	المهر النفقة
Guardianship Caring	01 03	<i>al-qawāmah</i> <i>al-rī'āyah</i>	القوامة الرعاية
Menstruation Intercourse	01 04	<i>al-maḥḥḍ</i> <i>al-rafath</i>	المحيض الرفث
Ill-behaviour Periodical abstention Eternal abstention	01 05	<i>al-nuḥūz</i> <i>al-ḥlā'</i> <i>al-dhihār</i>	النشوز الايلاء الظهار
Divorce Separation Death	01 06	<i>al-ṭalāq</i> <i>al-khul'</i> <i>al-mawt</i>	الطلاق الخلع الموت
FACET 02	Parents-Children relationship	علاقة الآباء - الأطفال	
Abortion Slaying	02 01	<i>al-ijhād</i> <i>al-qatl</i>	الأجهاض القتل
Waiting Period Lineage Adoption Malediction	02 02	<i>al-'iddah</i> <i>al-nasab</i> <i>al-tabannī</i> <i>al-li'ān</i>	العدة النسب التبني اللعان
Pregnancy Breastfeeding Nursing	02 03	<i>al-ḥaml</i> <i>al-radā'ah</i> <i>al-ḥadānah</i>	الحمل الرضاعة الحماتة
Upbringing	02 04	<i>al-tarbiyah</i>	التربية
FACET 03	Familial relationship	العلاقة الأسرية	
Bequest Inheritance	03 01	<i>al-waṣiyyah</i> <i>al-mirāth</i>	الوصية الميراث

HIERARCHICAL SECTION

القسم الهرمي

Betrothal	<i>al-khitbah</i>	الخطبة
Marriage	<i>al-nikâh</i>	النكاح
. Marriage and life continuity	. <i>al-nikâh wa istimrâriyyat al-ḥayâh</i>	. النكاح واستمرارية الحياة
. Marriage and disability	. <i>al-nikâh wa 'adam al-qudrah</i>	. النكاح وعدم القدرة
. Marriage and family classes	. <i>al-nikâh wa al-qarâbah</i>	. النكاح والقرباة
. Marriage and breastfeeding	. <i>al-nikâh wa al-radâ'ah</i>	. النكاح والرضاعة
. Marriage and relevances	. <i>al-nikâh wa al-muṣâharah</i>	. النكاح والمصاهرة
. Marriage and chastity women	. <i>al-nikâh wa al-ḥaṣânah</i>	. النكاح والحصانة
. Marriage and wives' adherents	. <i>al-nikâh wa al-tabannî</i>	. النكاح والتبني
. Marriage and first/second divorce	. <i>al-nikâh wa al-ṭalâq al-raj'îyy</i>	. النكاح والطلاق الرجعي
. Marriage and third divorce	. <i>al-nikâh wa al-ṭalâq al-bâ'in</i>	. النكاح والطلاق البائن
. Marriage and polygamy	. <i>al-nikâh wa al-ta'addud</i>	. النكاح والتعدد
. Marriage and right hands possess	. <i>al-nikâh wa milk al-yamîn</i>	. النكاح وملك اليمين
. Marriage and people of the Book	. <i>al-nikâh wa ahl al-kitâb</i>	. النكاح وأهل الكتاب
. Marriage and unbelievers	. <i>al-nikâh wa al-kufr</i>	. النكاح والكفر
. Marriage and adulterers/idolaters	. <i>al-nikâh wa al-zinâ/al-shirk</i>	. النكاح والزنا/الشرك
. Marriage and guardianship	. <i>al-nikâh wa al-qawâmah</i>	. النكاح والقوامة
Dowry	<i>al-mahr</i>	المهر
. Dowry and women	. <i>al-mahr wa al-mar'ah</i>	. المهر والمرأة
. Dowry and the right of the whole	. <i>al-mahr wa kâmil al-adâ'</i>	. المهر وكامل الاداء
. Dowry and the right of the half	. <i>al-mahr wa nisf al-adâ'</i>	. المهر ونصف الاداء
. Dowry and the loss of the right	. <i>al-mahr wa fuqdân ḥaq al-adâ'</i>	. المهر وفقدان حق الاداء
. Dowry and separation	. <i>al-mahr wa al-khul'</i>	. المهر والخلع
Maintenance	<i>al-nafaqah</i>	النفقة
. Maintenance and man	. <i>al-nafaqah wa al-rajul</i>	. النفقة والرجل
. Maintenance and guardianship	. <i>al-nafaqah wa al-qawâmah</i>	. النفقة والقوامة
. Maintenance and pregnancy	. <i>al-nafaqah wa al-ḥaml</i>	. النفقة والحمل
. Maintenance and breastfeeding	. <i>al-nafaqah wa al-radâ'ah</i>	. النفقة والرضاعة
. Maintenance and divorce	. <i>al-nafaqah wa al-ṭalâq</i>	. النفقة والطلاق
. Maintenance and waiting period	. <i>al-nafaqah wa al-'iddah</i>	. النفقة والعدة
Guardianship	<i>al-qawâmah</i>	القوامة
. Guardianship and marriage	. <i>al-qawâmah wa al-nikâh</i>	. القوامة والنكاح
. Guardianship and maintenance	. <i>al-qawâmah wa al-nafaqah</i>	. القوامة والنفقة
Caring	<i>al-ri'âyah</i>	الرعاية
Menstruation	<i>al-mahîd</i>	المحيض
. Menstruation and intercourse	. <i>al-mahîd wa al-rafath</i>	. المحيض والرفث
. Menstruation and divorce	. <i>al-mahîd wa al-ṭalâq</i>	. المحيض والطلاق
. Menstruation and waiting period	. <i>al-mahîd wa al-'iddah</i>	. المحيض والعدة
. Menstruation and garments	. <i>al-mahîd wa al-zinah</i>	. المحيض والزينة
Intercourse	<i>al-rafath</i>	الرفث
. Intercourse and menstruation	. <i>al-rafath wa al-mahîd</i>	. الرفث والمحيض
. Intercourse and ordination	. <i>al-rafath wa al-ityân</i>	. الرفث والإتيان
. Intercourse and praying	. <i>al-rafath wa al-ṣalâh</i>	. الرفث والصلاة
. Intercourse and mosques	. <i>al-rafath wa al-msâjid</i>	. الرفث والمساجد
. Intercourse and fasting	. <i>al-rafath wa al-ṣiyâm</i>	. الرفث والصيام
. Intercourse and pilgrimage	. <i>al-rafath wa al-ḥajj</i>	. الرفث والحج
Ill-behaviour	<i>al-nushûz</i>	النشوز
. Ill-behaviour and man	. <i>al-nushûz wa al-rajul</i>	. النشوز والرجل
. Ill-behaviour and woman	. <i>al-nushûz wa al-mar'ah</i>	. النشوز والمرأة
Periodical abstention	<i>al-ṣlâ'</i>	الايلاء
Eternal abstention	<i>al-zihâr</i>	الظهار
. Eternal abstention and prohibition	. <i>al-zihâr wa al-tahrîm</i>	. الظهار والتحریم
. Eternal abstention and expiation	. <i>al-zihâr wa al-kaffârah</i>	. الظهار والكفارة

Divorce	الطلاق
. Divorce and woman	. الطلاق والمرأة
. Divorce and the limits allowed	. الطلاق وعدد الطلاقات
. Divorce and 1st/2nd time	. الطلاق والرجوع
. Divorce and third time	. الطلاق والبيونة
. Divorce and dowry	. الطلاق والمهر
. Divorce and maintenance	. الطلاق والنفقة
Separation	الطَّلَع
Death	الموت
. Death and waiting period	. الموت والعدة
. Death and adultery	. الموت والزنا
. Death and bequest	. الموت والوصية
Abortion	الإجهاض
Slaying	القتل
. Slaying and children	. القتل والأبناء
. Slaying and blood fine	. القتل والدية
waiting period	العدة
. waiting period and compulsority	. العدة والوجوب
. waiting period and intercourse	. العدة والرفث
. waiting period and menstruation	. العدة والمحيض
. waiting period and months	. العدة والأشهر
. waiting period and pregnancy	. العدة والحمل
. waiting period and maintenance	. العدة والنفقة
. waiting period and 1st/2nd time	. العدة والطلاق الرجعي
. waiting period and death	. العدة والموت
Lineage	النسب
. Lineage and marriage	. النسب والنكاح
. Lineage and pregnancy	. النسب والحمل
Adoption	التبني
Malediction	الللعان
Pregnancy	الحمل
. Pregnancy and concealment	. الحمل والكتمان
. Pregnancy and maintenance	. الحمل والنفقة
. Pregnancy and waiting period	. الحمل والعدة
. Pregnancy and breastfeeding	. الحمل والرضاعة
Breastfeeding	الرضاعة
. Breastfeeding and marriage	. الرضاعة والنكاح
. Breastfeeding and pregnancy	. الرضاعة والحمل
. Breastfeeding and complete period	. الرضاعة وكامل المدة
. Breastfeeding and consultation	. الرضاعة والفصال
. Breastfeeding and maintenance	. الرضاعة والنفقة
Nursing	الحضنة
Upbringing	التربية
. Upbringing and religion	. التربية والدين
. Upbringing and children's rights	. التربية وحقوق الأبناء
. Upbringing and parent's rights	. التربية وحقوق الآباء
. Upbringing and manners	. التربية والأخلاق
Bequest	الوصية
. Bequest and death	. الوصية والموت
. Bequest and testimony	. الوصية والشهادة
Inheritance	الميراث
. Inheritance and children	. الميراث والأبناء
. Inheritance and parents	. الميراث والآبوان
. Inheritance and husband	. الميراث والزوج
. Inheritance and wife	. الميراث والزوجة
. Inheritance and brothers/sisters	. الميراث والأخوة/الأخوات
. Inheritance and kinsmen	. الميراث والأقارب

FACET 01 الوجه
SUBFACET 01 01 الوجه الفرعى

Betrothal

"There is no sin on you in making proposals for betrothal to women or in keeping this (intention) to yourselves. God knows that you will be thoughtful of them, but plight not your troth in secret unless you utter virtuous words. And do not resolve on the marriage tie until the prescribed term is reached" (2:235)

«وَلَا جُنَاحَ عَلَيْكُمْ فِيمَا عَرَّضْتُمْ بِهِ مِنْ خُطْبَةِ النِّسَاءِ أَوْ أَكْنَنْتُمْ فِىنْ أَنْفُسِكُمْ عَلِيمَ اللَّهِ أَنْكُمْ سَتَذَكَّرُونَ» وَلَكِنْ لَا تُوَاعِدُوهُنَّ سِرًّا إِلَّا أَنْ تَقُولُوا قَوْلًا مَعْرُوفًا وَلَا تَفْرِمُوا عَقْدَةَ النِّكَاحِ حَتَّى يَبْلُغَ الْكِتَابُ أَجَلَهُ» (٢:٢٣٥)

Marriage

النكاح

Marriage and life continuity

النكاح واستمرارية الحياة

"And God has given you wives of your own kind. And He has given you from your sons wives, sons and grandsons" (16:72)

«وَاللَّهُ جَعَلَ لَكُمْ مِنْ أَنْفُسِكُمْ أَزْوَاجًا وَجَعَلَ لَكُمْ مِنْ أَزْوَاجِكُمْ بَنِينَ وَحَفَدَةً» (١٦:٧٢)

"And it is He who has created man of water, and He made him kindred by blood and marriage" (25:54)

«وَهُوَ الَّذِي خَلَقَ مِنَ الْمَاءِ بَشَرًا فَجَعَلَهُ نَسَبًا وَصِهْرًا» (٥٤:٢٥)

"And among His signs is that He created for you wives from yourselves, that you might repose in them. And He has set between you amity and mercy" (30:21)

«وَمِنْ آيَاتِهِ أَنْ خَلَقَ لَكُمْ مِنْ أَنْفُسِكُمْ أَزْوَاجًا لِتَسْكُنُوا إِلَيْهَا وَجَعَلَ بَيْنَكُمْ مَوَدَّةً وَرَحْمَةً» (٣٠:٢١)

"Originator of the heavens and the earth. He made for you wives of yourselves, and of the cattle (He made) pairs, whereby He causes you to multiply" (42:11)

«فَاعِلِمْ السَّمَوَاتِ وَالْأَرْضِ جَعَلَ لَكُمْ مِنْ أَنْفُسِكُمْ أَزْوَاجًا وَمِنَ الْأَنْعَامِ أَزْوَاجًا يَذُرُّكُمْ فِيهِ» (١١:٤٢)

Marriage and disability

النكاح وعدم القدرة

"And let those who find no way to marriage be chaste until God enriches them of this bounty" (24:33)

«وَلْيَسْتَغْفِرِ الَّذِينَ لَا يَجِدُونَ نِكَاحًا حَتَّى يُفْنِيَهُمُ اللَّهُ مِنْ فَضْلِهِ» (٢٤:٣٣)

Marriage and family classes

"Forbidden you are your mothers, and your daughters, and your sisters, and your aunts (paternal and maternal) and your nieces" (4:23)

النكاح والعقابة

«حُرِّمَتْ عَلَيْكُمْ أُمَّهَاتُكُمْ وَبَنَاتُكُمْ وَأَخَوَاتُكُمْ وَعُمَّاتُكُمْ وَخَالَاتُكُمْ وَبَنَاتُ الْأَخِ وَبَنَاتُ الْأُخْتِ» (٢٣:٤)

Marriage and breastfeeding

". . . . And (forbidden) your mothers who have suckled you, and your suckling sisters" (4:23)

النكاح والرضاعة

« وَأُمَّهَاتُكُمُ اللَّاتِي أَرْضَعْنَكُمْ وَأَخَوَاتُكُم مِّنَ الرَّضَاعَةِ » (٢٣:٤)

Marriage and relevances

And marry not the women whom your fathers have married, save what already has happened in the past, for it is lewdness and abomination, and an evil way." (4:22)⁹

النكاح والمصاهرة

«وَلَا تَنْكِحُوا مَا نَكَحَ آبَاؤُكُمْ مِنَ النِّسَاءِ إِلَّا مَا قَدْ سَلَفَ إِنَّهُ كَانَ فَحِشًا وَمَقْتًا وَسَاءَ سَبِيلًا» (٢٣:٤)^٩

". . . . And (forbidden) your wives' mothers, and your step daughters who are in your care, from wives whom you have consorted with. But if you have not consorted with them, then it is no sin for you. And (forbidden) are the wives of your sons who are from your own loins. And you are not to take two sisters together unless it is something of the past" (4:23)¹⁰

« وَأُمَّهَاتُ نِسَائِكُمْ وَرَبِّبَاتِكُمُ اللَّاتِي فِي حُجُورِكُم مِّن نِّسَائِكُمُ اللَّاتِي دَخَلْتُم بِهِنَّ فَإِن لَّمْ يَكُونُوا دَخَلْتُم بِهِنَّ فَلَا جُنَاحَ عَلَيْكُمْ وَحَلَائِلُ أَبْنَائِكُمُ الَّذِينَ مِنْ أَصْلَابِكُمْ وَأَن تَجْمَعُوا بَيْنَ الْأُخْتَيْنِ إِلَّا مَا قَدْ سَلَفَ » (٢٣:٤)^{١٠}

⁹ This verse includes a difference of opinion in the reciting of the word *al-nisâ' i ilâ* (women save) based on the reading of Warsh and Qâlûn. (see 'Umar and Makram, *ibid.*, vol.II, p.121).

^٩ يرد في هذه الآية إختلاف في القراءة للفظ النِّسَاءِ إِلَّا وفقاً لقراءة ورش وقالون (أنظر عمر ومكرم، المرجع السابق، مج ٢، ص ١٢١).

¹⁰ This verse is related to an occasion(s) of revelation (see al-Suyûfî (1987), *op.cit.*, pp.70-71).

^{١٠} هذه الآية يصاحبها سبب نزول (أنظر السيوطي (١٩٨٧)، نكر أنفا، ص ٧٠-٧١).

Marriage and chastity women

"And (forbidden you also) are the married women except whom your right hands possess. So are God's commands to you. And it is lawful for you what is beyond that, if you use your wealth in virtuous wedlock not in lewdness" (4:24)

النكاح والحصانة

«وَالْمُحْصَنَاتُ مِنَ النِّسَاءِ إِلَّا مَا مَلَكَتْ أَيْمَانُكُمْ
يَكْتَبُ اللَّهُ عَلَيْكُمْ وَأَجَلَ لَكُمْ مَا وَرَاءَ نَلِكُمْ أَنْ
تَبْتَفُوا بِأَمْوَالِكُمْ مُحْصِنِينَ غَيْرَ مُسْفِحِينَ
(٢٤:٤)»

Marriage and wives' adherents

". . . . Then when Zayd had consummated her, We married her to you, so that there may be no sin for the believers in (marrying) the wives of their adherents if they consummated them" (33:37)¹¹

النكاح والتبني

« فَلَمَّا قَضَى زَيْدٌ مِنْهَا وَطَرًا زَوَّجْنَاكَهَا
لِكُنْ لَا يَكُونُ عَلَى الْمُؤْمِنِينَ حَرَجٌ فِي أَزْوَاجِ
أَدْعِيَابِهِمْ إِنْ قَضَوْا مِنْهُنَّ وَطَرًا»
١١ (٣٧:٣٣)

Marriage and first/second divorce

"Divorced women shall wait by themselves three menstrual courses; it shall not be licit for them to conceal what God has created in their wombs, if they truly believe in God and the Last Day. Their husbands have more right to restore them in such a state, if they so desire to reconcile. And they (women) have rights similar to their obligations in all equity" (2:228)¹²

النكاح والطلاق الرجعي

«وَالْمُطَلَّاتُ يَتَرَبَّصْنَ بِأَنْفُسِهِنَّ ثَلَاثَةَ قُرُوءٍ وَلَا
يَحِلُّ لَهُنَّ أَنْ يَكْتُمْنَ مَا خَلَقَ اللَّهُ فِي أَرْحَامِهِنَّ
إِنْ كُنَّ يُؤْمِنُنَّ بِاللَّهِ وَالْيَوْمِ الْآخِرِ وَبَعُولَتُهُنَّ أَحَقُّ
بِرُدِّهِنَّ فِي نِكَاحِ إِنْ أَرَادُوا إِمْتِنًا وَلَهُنَّ مِثْلُ
الَّذِي عَلَيْهِنَّ بِالْحَرَمِ» (٢:٢٢٨) ١٢

¹¹ This verse is related to an occasion(s) of revelation (see al-Suyûfî, *ibid.*, pp.227-228).

١١ هذه الآية يصاحبها سبب نزول (أنظر السيوطي، المرجع السابق، ص ٢٢٧-٢٢٨).

¹² This verse includes a difference of opinion in the reciting of the word *ann yaktumna* (to conceal) based on the reading of al-Dûwri. (see 'Umar and Makram, *ibid.*, vol.I, p.174). The verse is also related to an occasion(s) of revelation (see al-Suyûfî, *ibid.*, pp.39-40). Also the part "Their husbands have more right to restore them in such a state" has the possibility of abrogation being abrogated by verses 229-230 chapter 2 (see Ibn al-Bârîzî, *op.cit.*, pp.26-27).

١٢ يرد في هذه الآية إختلاف في القراءة للفظ أَنْ يَكْتُمْنَ وفقاً لقراءة الدوري (أنظر عمر ومكرم، المرجع السابق، مج ١، ص ١٧٤). كما يصاحب هذه الآية سبب نزول (أنظر السيوطي، المرجع السابق، ص ٢٩-٤٠). وكذلك يحتمل النص «وبعولتهن أحق بردهن في نكاح» إمكانية النسخ بالآيتين ٢٢٩-٢٣٠ من سورة ٢٠ (أنظر ابن البارزى، نكر أنفا، ص ٢٦-٢٧).

"Divorce is twice, then retention in honour or setting a way in kindness" (2:229)¹³

"If you divorce women and they have reached their term, do not prevent them from remarrying their husbands if they so honourably agree among themselves." (2:232)

Marriage and third time divorce

"Divorce is twice, then retention in honour or setting a way in kindness" (2:229)¹⁴

"But if he divorces her, she shall not be lawful to him thereafter until she has wedded another husband. And if he (the other husband) divorces her, it is then no sin on them that they return to each other should they think that they can keep the bounds of God" (2:230)¹⁵

Marriage and polygamy

". . . . then marry of the women such as seem good to you, two, three, or four. But if you fear that you cannot act fairly, then one only or what your right hands have acquired. This is the least that you can do to obviate injustice." (4:3)¹⁶

¹³ This verse is related to an occasion(s) of revelation (see al-Suyûfî, *ibid.*, pp.40-41).

¹⁴ This verse is related to an occasion(s) of revelation (see al-Suyûfî, *ibid.*, pp.40-41).

¹⁵ This verse is related to an occasion(s) of revelation (see al-Suyûfî, *ibid.*, p.41).

¹⁶ This verse includes a difference of opinion in the reciting of the word *adnâ* (the least) based on the reading of Warsh. (see 'Umar and Makram, *ibid.*, vol.II, p.107).

أَنطَلِقُ مَرَّتَانِ عَلَيْهِ فِيمَا سَاكَ بِمَعْرُوفٍ أَوْ تَسْرِيحٍ
بِإِحْسَانٍ (٢٢٩:٢) ١٣

«وَإِنَّا مَلَاقَتُمُ النِّسَاءَ فَبَلَغْنَ أَجَلَهُنَّ فَلَا تَعْضُلُوهُنَّ
أَنْ يَنْكِحْنَ أَزْوَاجَهُنَّ إِنَّا تَرَضَوْنَا بَيْنَهُمْ بِالْمَعْرُوفِ
. (٢٣٢:٢)»

النكاح والطلاق البائن

«أَنطَلِقُ مَرَّتَانِ عَلَيْهِ فِيمَا سَاكَ بِمَعْرُوفٍ أَوْ تَسْرِيحٍ
بِإِحْسَانٍ (٢٢٩:٢) ١٤

«فَإِنْ مَلَاقَهَا فَلَا تَحِلُّ لَهُ مِنْ بَعْدِ حَتَّى تَتَّكِفَ
زَوْجًا غَيْرَهُ فَإِنْ مَلَاقَهَا فَلَا جُنَاحَ عَلَيْهِمَا أَنْ
يَتَرَاجَعَا إِنْ هُمَا أَنْ يَقِيمَا هُدُودَ اللَّهِ
١٥ (٢٣٠:٢)»

النكاح والتعدد

« فَانكِحُوا مَا طَابَ لَكُمْ مِنَ النِّسَاءِ مَثْنٍ
وَأَثْنًا وَرُبْعًا فَإِنْ خِفْتُمْ أَلَّا تَعْدِلُوا فَوَاحِدَةً أَوْ
مَا مَلَكَتْ أَيْمَانُكُمْ نَلَاكُ أَدْنَىٰ أَلَّا تَعُولُوا» (٣:٤) ١٦

^{١٣} هذه الآية يصاحبها سبب نزول (أنظر السيوطي، المرجع السابق، ص ٤٠-٤١).

^{١٤} هذه الآية يصاحبها سبب نزول (أنظر السيوطي، المرجع السابق، ص ٤٠-٤١).

^{١٥} هذه الآية يصاحبها سبب نزول (أنظر السيوطي، المرجع السابق، ص ٤١).

^{١٦} يرد في هذه الآية اختلاف في القراءة للفظ *أَدْنَىٰ* وفقًا لقراءة ورش (أنظر عمر ومكرم، المرجع السابق، ص ١٠٧).

Marriage and right hands possess

"And whoever of you is unable to afford marrying the chaste believing women, then (you can marry) of what your right hands possess of your believing maidens. And God knows best your belief. The one of you comes from another. Hence, marry them by permission of their families, and give them their dowry in kindness as women in wedlock, not as in whoredom, nor as in taking concubines. But if they are married and commit debauchery, then upon them falls half of the punishment that falls on the women. This is for those of you who fear committing sins; that you persevere is better for you" (4:25)

"And marry those of you are single (male or female) and the righteous of your slaves and female slaves. If you are poor, God will enrich them of His munificence" (24:32)

Marriage and people of the Book

"Today the good provisions are lawful for you, and the food of those who were given the Book is lawful for you your food is licit for them. In like manner, believing women of those who were given the book before you give them their dowry in chaste wedlock and not in fornication, nor as taking concubines" (5:5)

Marriage and unbelievers

"O you who believe, when believing women come to you as emigrants, test them for God (alone) knows best their belief. Then if you know them to be true believers, do not return them to the unbelievers; they are not lawful to them, nor they (men) lawful to them" (60:10)

النكاح وملك اليمين

«وَمَنْ لَّمْ يَسْتَطِعْ مِنْكُمْ طَوْلًا أَنْ يَنْكَحَ الْمُحْصَنَاتِ الْمُؤْمِنَاتِ فَمَنْ مَمْلَكَتِ أَيْمَانُكُمْ مِنْ فَتْيَتِكُمْ الْمُؤْمِنَاتِ وَاللَّهُ أَعْلَمُ بِإِيمَانِكُمْ بَعْضُكُمْ مِنْ بَعْضٍ فَانْكِحُوهُنَّ بِإِذْنِ أَهْلِهِنَّ وَآتُوهُنَّ أَجُورَهُنَّ بِالْمَعْرُوفِ مُحْصَنَاتٍ غَيْرَ مُسَافِحَاتٍ وَلَا مُتَّخِذَاتِ أَخْدَانٍ فَإِذَا أَحْصَيْنَ فَإِنَّ لِكُنَّ نِصْفَ مَا عَلَى الْمُحْصَنَاتِ مِنَ الْعَذَابِ ذَلِكَ لِمَنْ حَشِيَ الْعَنَتَ مِنْكُمْ وَأَنْ تَصْبِرُوا خَيْرٌ لَكُمْ» (٢٥:٤)

«وَأَنْكِحُوا الْأَيْمَانَ مِنْكُمْ وَالصَّالِحِينَ مِنْ عِبَادِكُمْ وَإِمَائِكُمْ إِنْ يَكُونُوا فُقَرَاءَ يُغْنِهِمُ اللَّهُ مِنْ فَضْلِهِ» (٢٤:٣٢)

النكاح وامل الكتاب

«الْيَوْمَ أُحِلَّ لَكُمْ الْغَلِيظُ وَالطَّعَامُ الَّذِينَ أُوتُوا الْكِتَابَ حَلْلٌ لَكُمْ وَطَعَامُكُمْ حَلْلٌ لَهُمْ وَالْمُحْصَنَاتُ مِنَ الْمُؤْمِنَاتِ وَالْمُحْصَنَاتُ مِنَ الَّذِينَ أُوتُوا الْكِتَابَ مِنْ قَبْلِكُمْ إِذَا آتَيْتُمُوهُنَّ أَجُورَهُنَّ مُحْصِنِينَ غَيْرَ مُسَافِحِينَ وَلَا مُتَّخِذِي أَخْدَانٍ» (٥:٥)

النكاح والكفر

«يَا أَيُّهَا الَّذِينَ ءَامَنُوا إِنْ جَاءَكُمْ الْمُؤْمِنَاتُ مُهَاجِرَاتٍ فَامْتَحِنُوهُنَّ اللَّهُ أَعْلَمُ بِإِيمَانِهِنَّ فَإِنْ عَلِمْتُمُوهُنَّ مُؤْمِنَاتٍ فَلَا تَرْجِعُوهُنَّ إِلَى الْكُفَّارِ لَا مِنْ حِلٍّ لَهُنَّ وَلَا هُمْ يَحِلُّونَ لَهُنَّ» (١٠:٦٠)

Marriage and adulterers/idolaters

النكاح والزنا/ الشرك

"Wed not idolatresses till they believe, for truly a believing slave-girl is better than an idolatress even if you admire her. And wed not idolaters till they believe, for surely a believing slave is better than an idolater even if you admire him" (2:221)

«وَلَا تَنْكِحُوا الْمُشْرِكَاتِ حَتَّىٰ يُؤْمِنَنَّ وَلَا أُمَّةً مُّؤْمِنَةً خَيْرٌ مِّنْ مُّشْرِكَةٍ وَلَوْ أَعْجَبَتْكُمْ وَلَا تُنكِحُوا الْمُشْرِكِينَ حَتَّىٰ يُؤْمِنُوا وَلَعَبْدٌ مُّؤْمِنٌ خَيْرٌ مِّنْ مُّشْرِكٍ وَلَوْ أَعْجَبَكُمْ . . . » (٢٢١:٢)

"The adulterer shall not marry but an adulteress or an idolatress, and the adulteress, none shall marry her except an adulterer or an idolater. And that (adultery) is forbidden to believers." (24:3)¹⁷

«الزَّانِي لَا يَنْكِحُ إِلَّا زَانِيَةً أَوْ مُشْرِكَةً وَالزَّانِيَةُ لَا يَنْكِحُهَا إِلَّا زَانٍ أَوْ مُشْرِكٌ وَحَرِّمَ نَكَاحَ عَلَى الْمُؤْمِنِينَ» (٢٤:٣) ١٧

Marriage and guardianship

النكاح والقوامة

". . . . But men shall have one degree above them" (2:228)

« وَلِلرِّجَالِ عَلَيْهَا دَرَجَةٌ . . . » (٢٢٨:٢)

FACET	01	الوجه
SUBFACET	01 02	الوجه الفرعى

Dowry

المهر

Dowry and woman

المهر والمرأة

"And give the women their dowry, an obligation. But if they, of their own accord, should remit to you any of it, then enjoy it as convenient and appreciable." (4:4)

«وَأَتُوا النِّسَاءَ صَدَقَاتِهِنَّ نِحْلَةً فَإِنِ طِبْنَ لَكُمْ عَنْ شَيْءٍ مِّنْهُنَّ فَكُلُوهُ مَنِيئًا مَّرِيئًا» (٤:٤)

"O you who believe , it is neither lawful of you to inherit women against their will, nor is it lawful to restrain them so that you may take away what you have given them unless they commit flagrant debauchery" (4:19)¹⁸

«يَا أَيُّهَا الَّذِينَ آمَنُوا لَا يَحِلُّ لَكُمْ أَنْ تَرِثُوا النِّسَاءَ كَرِهًا وَلَا تَعْضَلُوهُنَّ لِتَذْهَبُوا بِبَعْضِ مَا آتَيْتُمُوهُنَّ إِلَّا أَنْ يَأْتِيَنَّ بِفَاحِشَةٍ مُّبِينَةٍ . . . » (١٩:٤) ١٨

¹⁷ This verse is related to an occasion(s) of revelation (see al-Suyûfî, *ibid.*, p.192).

١٧ هذه الآية يصاحبها سبب نزول (أنظر السيوطي، المرجع السابق، ص ١٩٢).

¹⁸ This verse is related to an occasion(s) of revelation (see al-Suyûfî, *ibid.*, pp.69-70).

١٨ هذه الآية يصاحبها سبب نزول (أنظر السيوطي، المرجع السابق، ص ٦٩-٧٠).

"And (forbidden you also) are the married women except whom your right hands possess. So are God's commands to you. And it is lawful for you what is beyond that, if you use your wealth in virtuous wedlock not in lewdness. For the enjoyment you get from them, give them their dowry. It is a duty. But there is no sin on you in what you agree between yourselves after the appropriate due" (4:24)

«وَالْمُحْصَنَاتُ مِنَ النِّسَاءِ إِلَّا مَا مَلَكَتْ أَيْمَانُكُمْ
كَتَبَ اللَّهُ عَلَيْكُمْ وَإِذَا لَكُمْ مَا وَرَاءَ ذَلِكَ أَنْ
تَنْتَفُوا بِأَمْوَالِكُمْ مُحْصِنِينَ غَيْرَ مُسْفِحِينَ فَمَا
أَسْتَمْتُمْ بِهِ مِنْهُنَّ فَآتُوهُنَّ أَجُورَهُنَّ فَرِيضَةً
وَلَا جُنَاحَ عَلَيْكُمْ فِي مَا تَرَضَيْتُمْ بِهِ مِنْ بَعْدِ
الْفَرِيضَةِ . . . » (٢٤:٤)

"And whoever of you is unable to afford marrying chaste and believing women, then (you can marry) of what your right hands possess of your believing maidens. And God knows best your belief. The one of you comes from another. Hence, marry them by permission of their families and give them their dowry in kindness as women in wedlock, not as in whoredom, nor as in taking concubines" (4:25)

«وَمَنْ لَمْ يَسْتَطِعْ مِنْكُمْ طَوْلًا أَنْ يَنْكِحَ
الْمُحْصَنَاتِ الْمُؤْمِنَاتِ فَمِنْ مِمَّا مَلَكَتْ أَيْمَانُكُمْ
مَنْ فَتَيَاكُمْ الْمُؤْمِنَاتِ وَاللَّهُ أَعْلَمُ بِإِيمَانِكُمْ
بَفَضْلِكُمْ مِنْ بَعْضٍ فَأَنْكِحُوهُنَّ بِإِذْنِ أَهْلِهِنَّ
وَأَتُوهُنَّ أَجُورَهُنَّ بِالْمَعْرُوفِ مُحْصَنَاتٍ غَيْرَ
مُسْفِحَاتٍ وَلَا مُتَّخِذَاتِ أَخْدَانٍ . . . » (٢٥:٤)

"Today the good provisions are lawful for you, and the food of those who were given the Book is lawful for you your food is licit for them. In like manner, believing women in wedlock, and in wedlock virtuous women of those who were given the book before you if you give them their dowry, in chaste wedlock and not in fornication, nor as taking concubines" (5:5)

«الْيَوْمَ أُحِلَّ لَكُمْ الْعَلْيَيْنِ وَمَعَاصِمَ الَّذِينَ أُوتُوا
الْكِتَابَ حِلٌّ لَكُمْ وَمَعَاصِمُكُمْ حِلٌّ لَهُمْ
وَالْمُحْصَنَاتُ مِنَ الْمُؤْمِنَاتِ وَالْمُحْصَنَاتُ مِنَ
الَّذِينَ أُتُوا الْكِتَابَ مِنْ قَبْلِكُمْ إِذَا آتَيْتُمُوهُنَّ
أَجُورَهُنَّ مُحْصِنِينَ غَيْرَ مُسْفِحِينَ وَلَا مُتَّخِذِي
أَخْدَانٍ . . . » (٥:٥)

"O you who believe, when believing women come to you as emigrants, test them for God (alone) knows best their belief. Then if you know them to be true believers, do not return them to the unbelievers; they are not lawful to them, nor they (men) lawful to them. And give back what they (the unbelievers) have expended; there is no sin upon you to wed them when you pay them their dowries. And do not hold fast to marriage ties with unbelieving women; ask what you have expended, and let them ask what they expended" (60:10)

«يَا أَيُّهَا الَّذِينَ آمَنُوا إِنَّا جَاءَكُمْ الْمُؤْمِنَاتُ
مُهَاجِرَاتٍ فَامْتَحِنُوهُنَّ اللَّهُ أَعْلَمُ بِإِيمَانِهِنَّ فَإِنْ
عَلِمْتُمُوهُنَّ مُؤْمِنَاتٍ فَلَا تَرْجِعُوهُنَّ إِلَى الْكُفَّارِ
لَا مِنْ حِلٍّ لَهُمْ وَلَا هُمْ يَحِلُّونَ لَهُنَّ وَءَاتُوهُنَّ مَا
أَنْفَقُوا وَلَا جُنَاحَ عَلَيْكُمْ أَنْ تَنْكِحُوهُنَّ إِذَا
آتَيْتُمُوهُنَّ أَجُورَهُنَّ وَلَا تُمْسِكُوا بِعِصَمِ الْكُوفَرِ
وَسَلُّوا مَا أَنْفَقْتُمْ وَلْيَسَلُّوا مَا أَنْفَقُوا . . . »
(١٠:٦٠)

Maintenance and man

النفقة والرجل

"... It is for the father to provide them and clothe them in kindness. No one is charged except within his means. A mother shall not suffer because of her child, nor shall a father because of his child, and the same shall be incumbent on the heir" (2:233)

«... وَعَلَى الْمَوْلُودِ لَهُ رِزْقُهُنَّ وَكِسْوَتُهُنَّ بِالْمَعْرُوفِ لَا تُكَلَّفُ نَفْسٌ إِلَّا وُسْعَهَا لَا تُضَارُّ وَالِدَةُ بَوْلِدِهَا وَلَا مَوْلُودٌ لَهُ بِوَالِدِهِ وَعَلَى الْوَارِثِ مِثْلُ ذَلِكَ...» (٢٣٣:٢)

Maintenance and guardianship

النفقة والقوامة

"Men are guardians over women for that God has made some of them excel others, and for that they have spent of their wealth" (4:34)²⁰

«الرِّجَالُ قَوَّامُونَ عَلَى النِّسَاءِ بِمَا فَضَّلَ اللَّهُ بَعْضَهُمْ عَلَى بَعْضٍ وَبِمَا أَنْفَقُوا مِنْ أَمْوَالِهِمْ...» (٢٠ (٤:٣٤))

Maintenance and pregnancy

النفقة والحمل

"... And if they are pregnant, then spend on them until they deliver their burden" (65:6)

«... وَإِنْ كُنَّ أَوْلِيَاتٍ حَمَلٌ فَانْفِقُوا عَلَيْهِنَّ حَتَّى يَضَعْنَ حَمْلَهُنَّ...» (٦٥:٦)

Maintenance and breastfeeding

النفقة والرضاعة

"... But if they desire to wean the child through consent and consultation, then it is no sin on them. But if you wish to seek nursing for your children, then it is no guilt on you if you deliver what you have given with kindness" (2:233)²¹

«... فَإِنْ أَرَادَا فِصَالًا عَنْ تَرَاضٍ مِّنْهُمَا وَتَشَاوُرٍ فَلَا جُنَاحَ عَلَيْهِمَا وَإِنْ أَرَدْتُمْ أَنْ تَسْتَرْضِعُوا أَوْلَادَكُمْ فَلَا جُنَاحَ عَلَيْكُمْ إِذَا سَلَّمْتُمْ مَا آتَيْتُمْ بِالْمَعْرُوفِ...» (٢١ (٢٣٣:٢))

²⁰ This verse is related to an occasion(s) of revelation (see al-Suyûfî, *ibid.*, p.72).

^{٢٠} هذه الآية يصاحبها سبب نزول (أنظر السيوطي، المرجع السابق، ص ٧٢).

²¹ This verse includes a difference of opinion in the reciting of the word *fiṣālan* (to wean the child) based on the reading of Warsh. (see 'Umar and Makram, *ibid.*, vol.I, p.179).

^{٢١} يرد في هذه الآية إختلاف في القراءة للفظ *فِصَالًا* وفقًا لقراءة ورش (أنظر عمر ومكرم، المرجع السابق، مج ١، ص ١٧٩).

". . . . And if they suckle for you, then pay them their wages, and consult one another in kindness. But if you differ then let another woman suckle for him. Let him who is affluent expend from his affluence. And let him whose provision has been straitened (by God) expend from what God has given him; for God charges no living soul except according to what He has bestowed upon it. Surely God shall make ease after hardship." (65:6-7)²²

« فَإِنْ أَرْضَعْنَ لَكُمْ فَآتُوهُنَّ أُجُورَهُنَّ
وَأْتَمِرُوا بَيْنَكُمْ بِمَعْرُوفٍ وَإِنْ تَعَاَسَرْتُمْ فَسْتَزْضِعْ
لِأُخْرَى، لِيُنْفِقَ نُوسَعَةً مِّن سَعَتِهِ وَمَن قَدَّرَ
عَلَيْهِ رِزْقَهُ فَلْيُنْفِقْ مِمَّا آتَاهُ اللَّهُ لَا يُكَلِّفُ اللَّهُ
نَفْسًا إِلَّا مَا آتَاهَا سَيَجْعَلُ اللَّهُ بَعْدَ عُسْرٍ
يُسْرًا» (٦٥:٦-٧) ٢٢

Maintenance and divorce

النفقة والطلاق

"No sin shall be on you if you divorce women before you have touched them, and have fixed a dowry on them. Yet, provide for them; the affluent man according to his means, and the straitened according to his means; a provision in honour-incumbent as the beneficent." (2:236)

«لَا جُنَاحَ عَلَيْكُمْ إِن طَلَقْتُمُ النِّسَاءَ مَا لَمْ
تَمْسُوهُنَّ أَوْ تَفْرِضُوا لَهُنَّ فَرِيضَةً وَمَتَّعُوهُنَّ عَلَى
الْمُوسَعِ قَدْرَهُ وَعَلَى الْمَقْتِرِ قَدْرَهُ مَتَّعًا
بِالْمَعْرُوفِ حَقًّا عَلَى الْمُحْسِنِينَ» (٢:٢٣٦)

Maintenance and waiting period

النفقة والعدة

"Let them dwell wherever you dwell, according to your means; and do not harass them, so as to straiten circumstances against them" (65:6)

«أَسْكِنُوهُنَّ مِّنْ حَيْثُ سَكَنْتُمْ مِّنْ وَّجَدِكُمْ وَلَا
تَضَارُّوهُنَّ لِيُضَيِّقُوا عَلَيْهِنَّ» (٦٥:٦)

²² This verse includes a difference of opinion in the reciting of the word *ukhrâ* (another woman) based on the readings of Warsh and Qâlûn. (see 'Umar and Makram, *ibid.*, vol.XII, p.169).

^{٢٢} يورد في هذه الآية اختلاف في القراءة للفظ
أُخْرَى وفقاً لقراءة ورش (أنظر عمر ومكرم،
المرجع السابق، مج ٧، ص ١٦٩).

FACET 01 الوجه
SUBFACET 01 03 الوجه الفرعى

Guardianship

القوامة

Guardianship and marriage

القوامة والنكاح

" But men shall have one degree above them" (2:228)

« وَلِلرِّجَالِ عَلَيْهِنَّ دَرَجَةٌ ۗ » (٢٢٨:٢)

Guardianship and maintenance

القوامة والنفقة

"Men are guardian over women for that God has made some of them excel others, and for what they have spent of their wealth" (4:34)²³

«الرِّجَالُ قَوَّامُونَ عَلَى النِّسَاءِ بِمَا فَضَّلَ اللَّهُ بَعْضَهُمْ عَلَى بَعْضٍ وَبِمَا أَنْفَقُوا مِنْ أَمْوَالِهِمْ ۗ » (٤:٣٤) ٢٣

Caring

الرعاية

"O you who believe , it is neither lawful of you to inherit women against their will, nor is it lawful to restrain them so that you may take away what you have given them unless they commit flagrant debauchery. And consort with them in kindness. But if you feel odium to them, then it may be that you feel aversion for a thing, God places in it much good." (4:19)²⁴

«يَا أَيُّهَا الَّذِينَ آمَنُوا لَا يَحِلُّ لَكُمْ أَنْ تَرِثُوا النِّسَاءَ كَرِهًا وَلَا تَعْضَلُوهُنَّ لِتَذَمَبُوا بَبَعْضِ مَا آتَيْتُمُوهُنَّ إِلَّا أَنْ يَأْتِيَنَّ بِفَاحِشَةٍ مَبِينَةٍ ۗ وَعَاشِرُوهُنَّ بِالْمَعْرُوفِ فَإِنْ كَرِهْتُمُوهُنَّ فَمَسَّنْ أَنْ تَكْرَهُوا شَيْئًا وَيَجْعَلَ اللَّهُ فِيهِ خَيْرًا كَثِيرًا ۗ » (٤:١٩) ٢٤

"Let them dwell wherever you dwell, according to your means; and do not harass them, so as to straiten circumstances against them" (65:6)

«أَسْكِنُوهُنَّ مِنْ حَيْثُ سَكَنْتُمْ مِنْ وُجْدِكُمْ وَلَا تُضَارِرُوهُنَّ لِتُضَيِّقُوا عَلَيْهِنَّ ۗ » (٦٥:٦)

²³ This verse is related to an occasion(s) of revelation (see al-Suyûṭî, *ibid.*, p.72).

٢٣ هذه الآية يصاحبها سبب نزول (أنظر السيوطى، المرجع السابق، ص ٧٢).

²⁴ This verse includes a difference of opinion in the reciting of the word *fa'asâ* (it may be) based on the reading of al-Dûwrî. (see 'Umar and Makram, *ibid.*, vol. II, p.120). The verse is also related to an occasion(s) of revelation (see al-Suyûṭî, *ibid.*, pp.69-70).

٢٤ يرد في هذه الآية إختلاف في القراءة للفظ فَعَسَنَ وفقاً لقراءة الدورى (أنظر عمر ومكرم، المرجع السابق، ص ٢، ص ١٢٠). كما يصاحب هذه الآية سبب نزول (أنظر السيوطى، المرجع السابق، ص ٦٩-٧٠).

FACET 01 الوجه
SUBFACET 01 04 الوجه الفرعى

Menstruation

المحيض

Menstruation and intercourse

المحيض والرفث

"They ask you concerning menstruation. Say: 'It is pernicious'. So retire from women and approach them not till they are cleansed" (2:222)²⁵

«وَيَسْأَلُونَكَ عَنِ الْمَحِيضِ قُلْ هُوَ أَذَى فَأَعْتَزِلُوا
النِّسَاءَ فِي الْمَحِيضِ وَلَا تَقْرَبُوهُنَّ حَتَّى يَطْهَرْنَ
ۚ» (٢٢٢:٢) ٢٥

Menstruation and divorce

المحيض والطلاق

"Divorced women shall wait by themselves three menstrual courses" (2:228)²⁶

«وَالْمُطَلَّقاتُ يَتَرَبَّصْنَ بِأَنْفُسِهِنَّ ثَلَاثَةَ قُرُوءٍ
ۚ» (٢٢٨:٢) ٢٦

Menstruation and waiting period

المحيض والعدة

"And those of your women who despaired of menstruating, if you are in doubt (during the waiting period), then their waiting period shall be three months; and those too who have not menstruated as yet" (65:4)

«وَالنِّسَاءُ الَّتِي يَئِسْنَ مِنَ الْمَحِيضِ مِنْ نِسَائِكُمْ إِنْ
أَرْزَبْتُمْ فَعِدَّتُهُنَّ ثَلَاثَةُ أَشْهُرٍ وَالنِّسَاءُ الَّتِي لَمْ يَحِضْنَ
ۚ» (٤:٦٥)

²⁵ This verse includes a difference of opinion in the reciting of the word *adhan* (pernicious) based on the reading of Warsh. (see 'Umar and Makram, *ibid.*, vol.I, p.170). The verse is also related to an occasion(s) of revelation (see al-Suyûfî, *ibid.*, p.38).

^{٢٥} يرد في هذه الآية إختلاف في القراءة للفظ أنى، وفقاً لقراءة ورش (أنظر عمر ومكرم، المرجع السابق، مج ١، ص ١٧٠). كما يصاحب هذه الآية سبب نزول (أنظر السيوطى، المرجع السابق، ص ٢٨).

²⁶ This verse is related to an occasion(s) of revelation (see al-Suyûfî, *ibid.*, p.40).

^{٢٦} هذه الآية يصاحبها سبب نزول (أنظر السيوطى، المرجع السابق، ص ٤٠).

Menstruation and garments

المحيض والزينة

"And such women who are past child-bearing, and have no hope of marriage, there is no sin in them that they put aside their (outer) garments, in such (a way) as not to show their adornment; and better still for them is to be abstinent" (24:60)

«وَالْقَوَاعِدُ مِنَ النِّسَاءِ الَّتِي لَا يَرْجُونَ نِكَاحًا فَلَيْسَ عَلَيْهِنَّ جُنَاحٌ أَنْ يَضَعْنَ ثِيَابَهُنَّ غَيْرَ مُتَبَرِّجَاتٍ بِزِينَةٍ وَأَنْ يَسْتَعْفِفْنَ خَيْرٌ لَهُنَّ» (٦٠:٢٤)

Intercourse

الرفث

Intercourse and menstruation

الرفث والمحيض

"They ask you concerning menstruation. Say: 'It is pernicious'. So retire from women and approach them not till they are cleansed" (2:222)²⁷

«وَيَسْأَلُونَكَ عَنِ الْمَحِيضِ قُلْ هُوَ أُنْجَسٌ فَأَعْتَزَلُوا النِّسَاءَ فِي الْمَحِيضِ وَلَا تَقْرَبُوهُنَّ حَتَّى يَطْهَرْنَ» (٢:٢٢٢) ٢٧

Intercourse and ordination

الرفث والوطء

". . . . When they are cleansed come to them as God has ordained you, for God loves those who are penitent and those who are clean. Your wives are tilth for you, so go in to your tilth whenever you wish, and advance good deed for yourselves" (2:222-223)²⁸

« فَإِنَّا نَطْهَرُنَّ فَأَتُونَنَّ مِنْ حَيْثُ أَمَرَكُمُ اللَّهُ إِنَّ اللَّهَ يُحِبُّ التَّوَّابِينَ وَيُحِبُّ الْمُتَطَهِّرِينَ، نِسَاؤُكُمْ حَرْثٌ لَكُمْ فَأَتُوا حَرْثَكُمْ أَنَّى شِئْتُمْ وَقَدِّمُوا لَأَنْفُسِكُمْ» (٢:٢٢٢-٢٢٣) ٢٨

²⁷ This verse includes a difference of opinion in the reciting of the word *adhan* (pernicious) based on the reading of Warsh. (see 'Umar and Makram, *ibid.*, vol.I, p.170). The verse is also related to an occasion(s) of revelation (see al-Suyûfî, *ibid.*, p.38).

٢٧ يرد في هذه الآية إختلاف في القراءة للفظ أنى وفقاً لقراءة ورش (أنظر عمر ومكرم، المرجع السابق، ص ١٧٠). كما يصاحب هذه الآية سبب نزول (أنظر السيوطي، المرجع السابق، ص ٢٨).

²⁸ This verse includes a difference of opinion in the reciting of the word *anâ* (whenever) based on the readings of Warsh and al-Dûrî ('Umar and Makram, *ibid.*, vol.I, p.172). The verse is also related to an occasion(s) of revelation (see al-Suyûfî, *ibid.*, pp.38-39).

٢٨ يرد في هذه الآية إختلاف في القراءة للفظ أنى وفقاً لقراءة ورش والدورى (أنظر عمر ومكرم، المرجع السابق، ص ١٧٢). كما يصاحب هذه الآية سبب نزول (أنظر السيوطي، المرجع السابق، ص ٢٨-٢٩).

Intercourse and praying

الرفث والصلاة

"O you who believe, approach not the prayer when you are drunken, till you know what you are saying; nor when you are defiled, unless you are traversing a way, until you have washed yourselves. And if you are sick or on a journey, or if any of you comes from the privy, then you have touched women, and you can find no water, then have recourse to clean dust and wipe your faces and your hands with it . . ." (4:43)²⁹

«يَا أَيُّهَا الَّذِينَ ءَامَنُوا لَا تَقْرَبُوا الصَّلَاةَ وَأَنْتُمْ سُكَرَىٰ حَتَّىٰ تَعْلَمُوا مَا تَقُولُونَ وَلَا جُنُبًا إِلَّا عَابِرِي سَبِيلٍ حَتَّىٰ تَغْتَسِلُوا وَإِنْ كُنْتُمْ مَرْضَىٰ أَوْ عَلَىٰ سَفَرٍ أَوْ جَاءَ أَحَدٌ مِنْكُمْ مِنَ الْغَائِطِ أَوْ لَمَسْتُمُ النِّسَاءَ فَلَمْ تَجِدُوا مَاءً فَتَيَمَّمُوا صَعِيدًا طَيِّبًا فَامْسَحُوا بِوُجُوهِكُمْ وَأَيْدِيكُمْ» (٤٣:٤) ٢٩

"O you who believe, when you rise up for prayer, wash your faces and your hands up to the elbows, and wipe your heads and your feet to the ankles. If you are unclean, then purify yourselves. And if you are sick or on a journey, or if one of you come from the privy, or you have touched women, and you find no water, then have recourse to clean dust and rub your faces and your hands with it" (5:6)³⁰

«يَا أَيُّهَا الَّذِينَ ءَامَنُوا إِذَا قُمْتُمْ إِلَى الصَّلَاةِ فَاغْسِلُوا وُجُوهَكُمْ وَأَيْدِيَكُمْ إِلَى الْمَرَافِقِ وَامْسَحُوا بِرُءُوسِكُمْ وَأَرْجُلَكُمْ إِلَى الْكَعْبَيْنِ وَإِنْ كُنْتُمْ جُنُبًا فَاطَهَّرُوا وَإِنْ كُنْتُمْ مَرْضَىٰ أَوْ عَلَىٰ سَفَرٍ أَوْ جَاءَ أَحَدٌ مِنْكُمْ مِنَ الْغَائِطِ أَوْ لَمَسْتُمُ النِّسَاءَ فَلَمْ تَجِدُوا مَاءً فَتَيَمَّمُوا صَعِيدًا طَيِّبًا فَامْسَحُوا بِوُجُوهِكُمْ وَأَيْدِيكُمْ مِنْهُ» (٦:٥) ٣٠

Intercourse and mosques

الرفث والمساجد

". . . . And do not consort with them while you cleave to mosques" (2:187)³¹

« وَلَا تَبَشِّرُوهُنَّ وَأَنْتُمْ عَاكِفُونَ فِي الْمَسَاجِدِ» (١٨٧:٢) ٣١

²⁹ This verse includes a difference of opinion in the reciting of the words *sukarâ* (are drunken), *marḍâ* (are sick) and *ahadun* (any of you) based on the readings of Warsh and Qâlûn. (see 'Umar and Makram, *ibid.*, vol.II, p.135-136).

^{٢٩} يرد في هذه الآية إختلاف في القراءة للفظ سُكَرَىٰ ولفظ مَرْضَىٰ ولفظ أَحَدٌ وفقا لقراءة ورش (أنظر عمر ومكرم، المرجع السابق، مج ٢، ص ١٣٥-١٣٦).

³⁰ This verse includes a difference of opinion in the reciting of the words *marḍâ* (are sick) and *ahadun* (any of you) based on the readings of Warsh and Qâlûn. (see 'Umar and Makram, *ibid.*, vol.II, p.195).

^{٣٠} يرد في هذه الآية إختلاف في القراءة للفظ مَرْضَىٰ ولفظ أَحَدٌ وفقا لقراءة ورش (أنظر عمر ومكرم، المرجع السابق، مج ٢، ص ١٩٥).

³¹ This verse is related to an occasion(s) of revelation (see al-Suyûfî, *ibid.*, p.27).

^{٣١} هذه الآية يصاحبها سبب نزول (أنظر السيوطي، المرجع السابق، ص ٢٧).

Intercourse and fasting

الرفث و الصيام

"It is lawful to you to consort with your wives on the night of the fast. They are a raiment for you and you are a raiment for them. God knows you have betrayed yourselves, but He has relented towards you and has relieved you. So now have intercourse with them, and seek what God has decreed for you" (2:187)³²

«أَحَلَّ لَكُمْ لَيْلَةَ الصِّيَامِ الرَّفَثُ إِلَى نِسَائِكُمْ مِمَّنْ لَبَّاسٌ لَكُمْ وَأَنْتُمْ لِبَاسٌ لَهُنَّ عَلِمَ اللَّهُ أَنَّكُمْ كُنْتُمْ تَخْتَانُونَ أَنْفُسَكُمْ فَتَابَ عَلَيْكُمْ وَعَفَا عَنْكُمْ فَالآنَ بَاشِرُوا مَنْ وَأَبْتَفُوا مَا كَتَبَ اللَّهُ لَكُمْ» (١٨٧:٢) ٢٢

Intercourse and pilgrimage

الرفث والحج

"Pilgrimage is in the months already known. Hence, whoever undertakes the duty of pilgrimage therein, shall have neither intercourse, nor debauchery, nor disputation in the pilgrimage" (2:197)

«الْحَجُّ أَشْهُرٌ مَعْلُومَاتٌ فَمَنْ فَرَضَ فِيهِنَّ الْحَجَّ فَلَا رَفَثَ وَلَا فُسُوقَ وَلَا جِدَالَ فِي الْحَجِّ» (١٩٧:٢)

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Ill-behaviour

النشوز

Ill-behaviour and man

النشوز والرجل

"And if a woman fears ill-behaviour or aversion on the part of her husband, then it is no sin both that they amend things between them, for right settlement is better" (4:128)³³

«وَإِنْ أَمْرًا خَافَتْ مِنْ بَعْلِهَا نُشُوزًا أَوْ إِعْرَاضًا فَلَا جُنَاحَ عَلَيْهِمَا أَنْ يُصْلِحَا بَيْنَهُمَا صُلْحًا وَالصُّلْحُ خَيْرٌ» (١٢٨:٤) ٢٣

³² This verse includes a difference of opinion in the reciting of the word *fal-âna* (so now) based on the reading of *Warsh*. (see 'Umar and Makram, *ibid.*, vol.I, p.147). The verse is also related to an occasion(s) of revelation (see al-Suyûfî, *ibid.*, p.27).

٢٢ يرد في هذه الآية إختلاف في القراءة للفظ *فَأَنْتَلْنَ* وفقا لقراءة ورش (أنظر عمر ومكرم، المرجع السابق، مج ١، ص ١٤٧). كما يصاحب هذه الآية سبب نزول (أنظر السيوطي، المرجع السابق، ص ٢٧).

³³ This verse includes a difference of opinion in the reciting of the word *yusliḥâ* (amend things) based on the reading of *Warsh*. (see 'Umar and Makram, *ibid.*, vol.II, p.168).

٢٣ يرد في هذه الآية إختلاف في القراءة للفظ *يُصْلِحَا* وفقا لقراءة ورش (أنظر عمر ومكرم، المرجع السابق، مج ٢، ص ١٦٨).

III-behaviour and woman

النشوز والمرأة

" And those women of whom you fear their dissent, exhort them, and abandon them in the beds, and beat them. But if they obey you, then seek not a way against them" (4:34)

« وَالَّتِي تَخَافُونَ نُشُوزَهُنَّ فَعِظُوهُنَّ
وَأَمْجُرُوهُنَّ فِي الْمَضَاجِعِ وَأَضْرِبُوهُنَّ فَإِنْ
أَطَعْنَكُمْ فَلَا تَبْتَغُوا عَلَيْهِنَّ سَبِيلًا » (٣٤:٤)

Periodical abstention

الإيلاء

"For those who swear to abstain from their wives, a wait of four months; but if they revert, then God is Forgiving, Merciful." (2:226)³⁴

« الَّذِينَ يُؤْلُونَ مِنْ نِسَائِهِمْ تَرَبَّصْ أَرْبَعَةَ أَشْهُرٍ
فَإِنْ فَكَأُوا فَإِنَّ اللَّهَ غَفُورٌ رَحِيمٌ » (٢:٢٢٦) ٢٤

Eternal abstention

الظهار

Eternal abstention and prohibition

"God has not made for any man two hearts within his breast, nor has He made your wives whom you declare to be as your mothers" (33:4)³⁵

« مَا جَعَلَ اللَّهُ لِرَجُلٍ مِنْ قَلْبَيْنِ فِي جَوْفِهِ وَمَا
جَعَلَ أَزْوَاجَكُمْ مِنَ النَّسِ تَطَاهِرُونَ مِنْهُنَّ أُمَّهَاتِكُمْ
. . . . » (٤:٣٣) ٣٥

³⁴ This verse includes a difference of opinion in the reciting of the word *yū'lūna* (put aside) based on the reading of Warsh. (see 'Umar and Makram, *ibid.*, vol.I, p.172). This verse is also related to an occasion(s) of revelation (see al-Wâhidî, *op.cit.*, pp.42-43).

٢٤ يرد في هذه الآية إختلاف في القراءة للفظ يُؤْلُونَ وفقاً لقراءة ورش (أنظر عمر ومكرم، المرجع السابق، مج ١، ص ١٧٢). كما يصاحب هذه الآية سبب نزول (أنظر الواحدى، نكر أنفا، ص ٤٢-٤٣).

³⁵ This verse includes a difference of opinion in the reciting of the word *al-lâ'î* (whom) based on the reading of Warsh and Qâlûn. (see 'Umar and Makram, *ibid.*, vol.V, p.109).

٣٥ يرد في هذه الآية إختلاف في القراءة للفظ النَّسِ وفقاً لقراءة ورش وقالون (أنظر عمر ومكرم، المرجع السابق، مج ٥، ص ١٠٩).

"And those who put aside their wives saying, 'You are to me as my mother's back', they are not indeed their mothers, for their mothers are none but those who gave them birth. They certainly say a despicable saying and a falsehood . . ." (58:2)³⁶

«الَّذِينَ يُظَاهِرُونَ مِنْكُمْ مِمَّن نَسَأْنَهُمْ مَا هُنَّ أُمَّهَاتُهُمْ إِنْ أُمَّهَاتُهُمْ إِلَّا اللَّائِي وَلَدْنَهُمْ وَإِنَّهُمْ لَيَقُولُونَ مُنْكَرًا مِنَ الْقَوْلِ وَزُورًا . . . »
٣٦ (٢:٥٨)

Eternal abstention and expiation

الظهار والكفارة

"And those who put apart their wives, then retract what they have said, should set a slave free before they touch one another. That is for you to be exhorted by. And truly God is cognizant of what you do. But whoever finds not (the means) shall then fast two consecutive months before they touch one another. And whoever is not able (to fast), shall then feed sixty poor persons. That is in order to believe in God and His Messenger . . ." (58:3-4)

«وَالَّذِينَ يُظَاهِرُونَ مِنْ نِسَائِهِمْ ثُمَّ يَعُودُونَ لِمَا قَالُوا فَتَحْرِيرُ رَقَبَةٍ مِنْ قَبْلِ أَنْ يَتَمَاسَا نَلَّكُمْ تُوعَظُونَ بِهِ وَاللَّهُ بِمَا تَعْمَلُونَ خَبِيرٌ، فَمَنْ لَمْ يَجِدْ فَصِيَامَ شَهْرَيْنِ مُتَتَابِعَيْنِ مِنْ قَبْلِ أَنْ يَتَمَاسَا فَمَنْ لَمْ يَسْتَطِعْ فإِطْعَامَ سِتِّينَ مِسْكِينًا ذَلِكَ لِيَتُؤْمِنُوا بِاللَّهِ وَرَسُولِهِ . . . » (٤-٣:٥٨)

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Divorce

الطلاق

Divorce and woman

الطلاق والمرأة

"But if they resolve on divorce, then indeed God is All-hearing, All-Knowing." (2:227).

«وَإِنْ عَزَمُوا الطَّلَاقَ فَإِنَّ اللَّهَ سَمِيعٌ عَلِيمٌ»
(٢٢٧:٢)

Divorce and the limits allowed

الطلاق وعدد الطلقات

"Divorce is twice, then retention in honour or setting a way in kindness . . ." (2:229)³⁷

«الطَّلَاقُ مَرَّتَانٍ فَإِمْسَاكٌ بِمَعْرُوفٍ أَوْ تَسْرِيحٌ بِإِحْسَانٍ . . . » (٢٢٩:٢) ٣٧

³⁶ This verse is related to an occasion(s) of revelation (see al-Wâhidî, *ibid.*, pp.232-233).

٣٦ هذه الآية يصاحبها سبب نزول (انظر الواحدى، المرجع السابق، ص ٢٣٢-٢٣٣).

³⁷ This verse is related to an occasion(s) of revelation (see al-Suyûfî, *ibid.*, pp.40-41).

٣٧ هذه الآية يصاحبها سبب نزول (انظر السيوطى، المرجع السابق، ص ٤٠-٤١).

Divorce and first/second time

"If you divorce women, and they reach their term, either retain them with kindness, or let them go with kindness. But retain them not intending to hurt them in transgression, for whoever does that will be iniquitous to himself" (2:231)³⁸

"And if they reach their set time, then retain them in kindness, or depart from them in kindness. And call in two just witnesses from amongst yourselves, and observe the witnessing for God" (65:2)

Divorce and third time

"But if he divorces her, she shall not be lawful to him thereafter until she has wedded another husband. And if he divorces her, it is then no sin on them that they return to each other should they think that they can keep the bounds of God" (2:230)³⁹

Divorce and dowry

"And if you divorce them before you have touched them and have settled a dowry on them, then half of what you have appointed to them, unless they agree to forgo it, or he forgoes it who authorizes the marriage tie. Yet, to forgo is nearer to piety" (2:237)

الطلاق والرجوع

«وَإِنَّا طَلَقْتُمُ النِّسَاءَ فَبَلَغْنَ أَجَلَهُنَّ فَأَمْسِكُوهُنَّ بِمَعْرُوفٍ أَوْ سَرِّحُوهُنَّ بِمَعْرُوفٍ وَلَا تُمْسِكُوهُنَّ ضِرَارًا لِّتَعْتَدُوا وَمَن يَفْعَلْ ذَلِكَ فَقَدْ ظَلَمَ نَفْسَهُ»
٢٨ (٢٣١:٢)

«فَإِنَّا بَلَّغْنَ أَجَلَهُنَّ فَأَمْسِكُوهُنَّ بِمَعْرُوفٍ أَوْ فَارِقُوهُنَّ بِمَعْرُوفٍ وَأَشْهِدُوا نُورَى عَدْلٍ مِّنكُمْ وَأَقِيمُوا الشَّهَادَةَ لِلَّهِ» (٢:٦٥)

الطلاق والبينونة

«فَإِن طَلَّقَهَا فَلَا تَحِلُّ لَهُ مِن بَعْدِ حَتَّى تَكَحَّ زَوْجًا غَيْرَهُ فَإِن طَلَّقَهَا فَلَا جُنَاحَ عَلَيْهِمَا أَنْ يَتَرَاجَعَا إِن طَلَّأَا أَن يُقِيمَا حُدُودَ اللَّهِ»
٣٩ (٢٣٠:٢)

الطلاق والمهر

«وَإِن طَلَقْتُمُوهُنَّ مِن قَبْلِ أَنْ تَمْسُوهُنَّ وَقَدْ فَرَضْتُمْ لَهُنَّ فَرِيضَةً فَنِصْفَ مَا فَرَضْتُمْ إِلَّا أَنْ يَعْفُونَ أَوْ يَعْفُوا الَّذِي بِيَدِهِ عَقْدَةُ النِّكَاحِ وَأَنْ تَعْفُوا أَقْرَبُ لِلتَّقْوَى» (٢٣٧:٢)

³⁸ This verse includes a difference of opinion in the reciting of the word *zalama* (iniquitous) based on the reading of Warsh. (see 'Umar and Makram, *ibid.*, vol.I, p.176). The verse is also related to an occasion(s) of revelation (see al-Suyûfî, *ibid.*, p.42).

³⁹ This verse is related to an occasion(s) of revelation (see al-Suyûfî, *ibid.*, p.41).

٢٨ يرد في هذه الآية إختلاف في القراءة للفظ ظلم وفقاً لقراءة ورش (أنظر عمر ومكرم، المرجع السابق، مج ١، ص ١٧٦). كما يصاحب هذه الآية سبب نزول (أنظر السيوطي، المرجع السابق، ص ٤٢).

٣٩ هذه الآية يصاحبها سبب نزول (أنظر السيوطي، المرجع السابق، ص ٤١).

"And if you wish to exchange one wife for another, and you have given to one of them a hundred-weight take nothing of it. Will you take it by way of calumny and blatant perfidy? And will you take it when one of you has consorted with the other, and they have taken from you a solemn pledge (of union)." (4:20-21)⁴⁰

«وَأِنْ أَرَدْتُمْ اسْتِبْدَالَ زَوْجٍ مَّكَانَ زَوْجٍ وَآتَيْتُمْ إِخْدَانَهُنَّ قِطَارًا فَلَا تَأْخُذُوا مِنْهُ شَيْئًا أَتَأْخُذُونَهُ بُهْتَانًا وَإِثْمًا مُّبِينًا، وَكَيْفَ تَأْخُذُونَهُ وَقَدْ أَفْضَى بَعْضُكُمْ إِلَى بَعْضٍ وَأَخَذْنَ مِنْكُمْ مِيثَاقًا غَلِيظًا» (٢٠:٤-٢١) ٤٠

Divorce and maintenance

الطلاق والنفقة

"No sin shall be on you if you divorce women before you have touched them, and have fixed a dowry on them. Yet, provide for them; the affluent man according to his means, and the straitened according to his means; a provision in honour-incumbent as the beneficent." (2:236)

«لَا جُنَاحَ عَلَيْكُمْ إِنْ طَلَقْتُمُ النِّسَاءَ مَا لَمْ تَمْسُوهُنَّ أَوْ تَفْرِضُوا لَهُنَّ فَرِيضَةً وَمَتَّعُوهُنَّ عَلَى الْمَوْسِعِ قَدَرَهُ وَعَلَى الْمَقْتِرِ قَدَرَهُ مَتَّعًا بِالْمَعْرُوفِ حَقًّا عَلَى الْمُحْسِنِينَ» (٢٣٦:٢)

Separation

الطَّلَع

". . . . But if you fear that you cannot maintain the bounds of God, then it is no sin on them if she redeems herself" (2:229)

«. . . . فَإِنْ خِفْتُمْ أَلَّا يُقِيمَا حَدُودَ اللَّهِ فَلَا جُنَاحَ عَلَيْهِمَا فِيمَا افْتَدَتْ بِهِ» (٢٢٩:٢)

Death

الموت

Death and waiting period

الموت والعدة

"Those of you who die and leave wives behind, they shall wait by themselves four months and ten (days). Then when they reach the end of their term, it is no sin on you that they do for themselves (what they desire) in honour" (2:234)

«وَالَّذِينَ يَتُوفَوْنَ مِنْكُمْ وَيَذَرُونَ أَزْوَاجًا يَتَرَبَّصْنَ بِأَنْفُسِهِنَّ أَرْبَعَةَ أَشْهُرٍ وَعَشْرًا فَإِذَا بَلَغْنَ أَجَلَهُنَّ فَلَا جُنَاحَ عَلَيْكُمْ فِيمَا فَعَلْنَ فِي أَنْفُسِهِنَّ بِالْمَعْرُوفِ» (٢٣٤:٢)

⁴⁰ This verse includes a difference of opinion in the reciting of the words *ihdâhunna* (one of them) and *afḍâ* (have taken from) based on the reading of Warsh. (see 'Umar and Makram, *ibid.*, vol.II, p.121).

^{٤٠} يرد في هذه الآية اختلاف في القراءة للفظ إخذلن ولفظ أفضى وفقا لقراءة ورش (أنظر عمر ومكرم، المرجع السابق، مج ٢، ص ١٢١).

Death and adultery

"And those of your women who commit whoredom, call four witnesses from amongst yourselves against them. If they witness, then confine them to the homes until death overtakes them or until God opens a way for them." (4:15)⁴¹

الموت والزنا

وَالَّذِي يَأْتِيَنَّ الْفَاحِشَةَ مِنْ نِسَائِكُمْ فَاسْتَشْهِدُوا
عَلَيْهِنَّ أَرْبَعَةً مِنْكُمْ فَإِنْ شَهِدُوا فَأَمْسِكُوهُنَّ فِي
الْبُيُوتِ حَتَّى يَتَوَفَّيَهُنَّ الْمَوْتُ أَوْ يَجْعَلَ اللَّهُ لَهُنَّ
سَبِيلًا (١٥:٤) ٤١

Death and bequest

"Decreed for you is that, when one of you approaches death, if he leaves wealth, he makes a will bequeathing equitably to the parents and kinsmen (and kinswomen). (That is) a duty on the godfearing. Yet, whoever changes it after he has heard it, the sin for it shall surely fall on those who change it. Verily, God is All-Hearing, All-knowing. But whoever fears deviation or sinful tendency from a testator and makes things right between them, no sin shall rest upon him" (2:180-182)⁴²

الموت والوصية

«كُتِبَ عَلَيْكُمْ إِذَا حَضَرَ أَحَدَكُمُ الْمَوْتُ إِنْ تَرَكَ
خَيْرًا الْوَصِيَّةَ لِلْوَالِدَيْنِ وَالْأَقْرَبِينَ بِالْمَعْرُوفِ
حَقًّا عَلَى الْمُتَّقِينَ، فَمَنْ بَدَّلَهُ بَعْدَ مَا سَمِعَهُ
فَإِنَّمَا إِثْمُهُ عَلَى الَّذِينَ يُبَدِّلُونَهُ إِنَّ اللَّهَ سَمِيعٌ
عَلِيمٌ، فَمَنْ خَافَ مِنْ مَوْسٍ جَنَفًا أَوْ إِثْمًا
فَأَصْلَحَ بَيْنَهُمْ فَلَا إِثْمَ عَلَيْهِ»
(١٨٠:٢-١٨٢) ٤٢

⁴¹ This verse includes a difference of opinion in the reciting of the word *yatawafahunna* (death overtakes them) based on the reading of Warsh. (see 'Umar and Makram, *ibid.*, vol.II, p.118). This verse also contains a possibility of abrogation being abrogated by verse 2 chapter 24 (see Ibn Du'âmah, *op.cit.*, p.39).

⁴² This verse contains a possibility of abrogation being abrogated by verse 11 chapter 4 (see Ibn al-Bârîzî, *ibid.*, p.25).

^{٤١} يرد في هذه الآية إختلاف في القراءة للفظ *يَتَوَفَّيَهُنَّ* وفقا لقراءة ورش (أنظر عمر ومكرم، المرجع السابق، مج ٢، ص ١١٨). وكذلك تحتمل هذه الآية إمكانية النسخ بالآية ٢ من سورة ٢٤ (أنظر ابن دعامه، نكر أنفا، ص ٣٩)

^{٤٢} تحتمل هذه الآية إمكانية النسخ بالآية ١١ من سورة ٤ (أنظر ابن البارزى، المرجع السابق، ص ٢٥)

" Those of you who die and leave wives, (should leave) a testament for their wives bequeathing a provision for a year without expulsion. But if they go out, then there is no sin on you in what they do with themselves in fairness" (2:240)⁴³

«وَالَّذِينَ يُتَوَفَّوْنَ مِنْكُمْ وَيَذَرُونَ أَزْوَاجًا وَصِيَّةً لِأَزْوَاجِهِمْ مَتَاعًا إِلَى الْخَوْلِ غَيْرَ إِخْرَاجٍ فَإِنْ خَرَجْنَ فَلَا جُنَاحَ عَلَيْكُمْ فِي مَا فَعَلْنَ فِي أَنْفُسِهِنَّ مِنْ مَّعْرُوفٍ . . . » (٢:٢٤٠) ٤٣

FACET	02	الوجه
SUBFACET	02 01	الوجه الفرعى

Abortion

الأجهاض

"And do not slay your children for fear of indigence, for We provide them and you. Surely their slaying is a heinous sin." (17:31)

«وَلَا تَقْتُلُوا أَوْلَادَكُمْ خَشْيَةَ إِمْلَاقٍ نَحْنُ نَرْزُقُهُمْ وَإِيَّاكُمْ إِنَّ قَتْلَهُمْ كَانَ خِطْئًا كَبِيرًا» (١٧:٣١)

⁴³ This verse is related to an occasion(s) of revelation (see al-Suyûṭī, *ibid.*, pp.43-44). The verse also contains a possibility of abrogation being abrogated by verse 12 chapter 4 (see Ibn Du'âmāh, *ibid.*, p.36).

٤٣ هذه الآية يصاحبها سبب نزول (أنظر السيوطي، المرجع السابق، ص ٤٣-٤٤). وكذلك تحتل هذه الآية إمكانية النسخ بالآية ١٢ من سورة ٤ (أنظر ابن دعامة، المرجع السابق، ص ٣٦)

"O Prophet, when believing women come to you, swearing allegiance to you that they will not ascribe anything to God; neither will they steal nor commit whoredom, nor slay their children, nor bring any calumny that they may forge between their hands and their feet, nor disobey you in a good turn; then seal a pledge with them, and ask God's forgiveness for them." (60:12)⁴⁴

«يَأْتِيهَا النَّبِيُّ إِذَا جَاءَكَ الْمُؤْمِنَاتُ يَبَايَعَنَّكَ
عَلَىٰ أَنْ لَا يُشْرِكْنَ بِاللَّهِ شَيْئًا وَلَا يَسْرِقْنَ وَلَا
يَزْنِينَ وَلَا يَقْتُلْنَ أَوْلَادَهُنَّ وَلَا يَأْتِينَ بِبُهْتَانٍ
يَفْتَرِيهِ بَيْنَ أَيْدِيهِنَّ وَأَرْجُلِهِنَّ وَلَا يَفْصِيَنَّ فِي
مَعْرُوفٍ فَبَايَعَهُنَّ وَأَسْتَغْفِرْ لَهُنَّ اللَّهُ»
٤٤ (١٢:٦٠)

"And when the girl-child buried alive is asked, for what reason was she slain." (81:8-9)

«وَإِنَّا الْمَمُودَّةُ سُلِّتْ، بِأَيِّ نَنْبٍ قُتِلَتْ»
(٨١:٨-٩)

Slaying

القتل

Slaying and children

القتل والأطفال

"... And slay not yourselves" (4:29-30)

«... وَلَا تَقْتُلُوا أَنْفُسَكُمْ . . .» (٢٩:٤-٣٠)

"And he who slays a believer with premeditation, his reward shall be Gehenna, therein to abide for ever, and God will be irate with him, and will curse him, and shall prepare a great torment for him." (4:93)

«وَمَنْ يَقْتُلْ مُؤْمِنًا مُتَعَمِّدًا فَجَزَاؤُهُ جَهَنَّمُ
مُخَلِّدًا فِيهَا وَغَضِبَ اللَّهُ عَلَيْهِ وَلَعَنَهُ وَأَعَدَّ لَهُ
عَذَابًا عَظِيمًا» (٩٣:٤)

⁴⁴ The phrase "nor bring any calumny that they may forge between their hands and their feet" has two different interpretations. Al-Qurṭubî has pointed out that according to one view the phrase generally refers to adultery or those [women] who beget illegitimate children (by deceiving their husbands). While according to the other view, it refers to bewitching and bewitching - related acts. (see al-Qurṭubî, *ibid.*, XVII, p.72-74. However, it may also bear the possibility of being a reference to the abortion. However, the verse also includes a difference of opinion in the reciting of the words *wa istaghfir lahun* (and ask God's forgiveness for them) based on the reading of al-Dûwrî. (see 'Umar and Makram, *ibid.*, vol.VII, p.133).

٤٤ طبقا لما أورده القرطبي في تفسيره أن النص «ولا يأتين ببهتن يفتريه بين أيديهن وأرجلهن» يحتمل تفسيران. الأول: أن النص عامة يحمل معنى الزنا أو النساء اللواتي يلحقن بأزواجهن أطفالا ليسوا من أصله. الثاني: أن النص يشير إلى مضمون السحر (أنظر القرطبي، المرجع السابق، مج ١٧، ص ٧٢-٧٤). هذا ويحتمل النص أيضا المعنى المجازي للإجهاض. كما يرد في هذه الآية اختلاف في القراءة للفظ وأستغفر لهن وفقا لقراءة الدوري (أنظر عمر ومكرم، المرجع السابق، مج ٧، ص ١٢٣).

"And thus those associates made it seem fair to many of the idolaters to slay their children, that they may destroy and confound for them their religion" (6:137)

«وَكَذَلِكَ زَيْنَ لِكَثِيرٍ مِّنَ الْمُشْرِكِينَ قَتَلَ أَوْلَادَهُمْ
شُرَكَاءَهُمْ لِيُرُدُّوهُمْ وَلِيَلْبِسُوا عَلَيْهِمْ دِينَهُمْ
(١٣٧:٦)»

"Lost are they who slay their children in folly, without knowledge, and forbid what God has provided for them, in calumny against God" (6:140)⁴⁵

«قَدْ خَسِرَ الَّذِينَ قَتَلُوا أَوْلَادَهُمْ سَفَهًا بِغَيْرِ عِلْمٍ
وَحَرَمُوا مَا رَزَقَهُمُ اللَّهُ افْتِرَاءً عَلَى اللَّهِ»
(١٤٠:٦) ٤٥

". . . . and that you do not slay your children because of poverty, for We provide for you and them" (6:151)

« وَلَا تَقْتُلُوا أَوْلَادَكُمْ مِمَّنْ إِمْلَقْنَا نَحْنُ
نَرْزُقُكُمْ وَإِيَّاهُمْ» (١٥١:٦)

". . . . and that you do not slay the soul that God has prohibited save by justice" (6:151)

« وَلَا تَقْتُلُوا النَّفْسَ الَّتِي حَرَّمَ اللَّهُ إِلَّا
بِالْحَقِّ» (١٥١:٦)

"And when any one of them is given the tidings of a female, his face is darkened, stifling (anger), retiring from the sight of the people because of the evil tidings he was given; should he keep it in contempt or inhume it in the dust? Wretched is that which they judge!" (16:58-59)⁴⁶

«وَإِنَّا بَشَرٌ أَحَدُهُمْ بِالْأُنثَىٰ ظَلَّ وَجْهُهُ مُسْوَدًّا
وَهُوَ كَهِيمٌ، يَتَوَارَىٰ مِنَ الْقَوْمِ مِنْ سُوءِ مَا بُشِّرَ
بِهِ، أَيُّسُّكُهُ عَلَىٰ هُونٍ أَمْ يَدُسُّهُ فِي التُّرَابِ أَلَّا
سَاءَ مَا يَحْكُمُونَ» (١٦:٥٨-٥٩)

"And do not slay the soul that God has forbidden save with justice" (17:33)

«وَلَا تَقْتُلُوا النَّفْسَ الَّتِي حَرَّمَ اللَّهُ إِلَّا بِالْحَقِّ
(٣٣:١٧)»

"And those who do not impute another god to God, and who do not slay the living soul that God has forbidden expect by right, nor commit adultery, for whoever does that shall receive (the reward) of the sin." (25:68)

«وَالَّذِينَ لَا يَدْعُونَ مَعَ اللَّهِ إِلَهًا آخَرَ وَلَا يَقْتُلُونَ
النَّفْسَ الَّتِي حَرَّمَ اللَّهُ إِلَّا بِالْحَقِّ وَلَا يَزْنُونَ
وَمَنْ يَفْعَلْ ذَلِكَ يَلْقَ أَثَامًا» (٢٥:٦٨)

45 This verse includes a difference of opinion in the reciting of the word *qad khasira* (Lost are they) based on the reading of Warsh. (see 'Umar and Makram, *ibid.*, vol.II, p.326).

٤٥ يرد في هذه الآية اختلاف في القراءة للفظ قد خسر وفقا لقراءة ورش (أنظر عمر ومكرم، المرجع السابق، مج ٢، ص ٢٢٦).

46 This verse includes a difference of opinion in the reciting of the word *yatawarâ* (retiring from the sight) based on the reading of Warsh. (see 'Umar and Makram, *ibid.*, vol.III, p.284).

٤٦ يرد في هذه الآية اختلاف في القراءة للفظ يتوارى وفقا لقراءة ورش (أنظر عمر ومكرم، المرجع السابق، مج ٣، ص ٢٨٤).

"O Prophet, when believing women come to you, swearing allegiance to you that they will not ascribe anything to God; neither will they steal nor commit whoredom, nor slay their children, nor bring any calumny that they may forge between their hands and their feet, nor disobey you in a good turn; then seal a pledge with them, and ask God's forgiveness for them" (60:12)⁴⁷

"And when the girl-child buried alive is asked, for what reason was she slain." (81:8-9)

«يَأْيَاهَا النَّبِيُّ إِنَّا جَاءَكَ الْمُؤْمِنَاتُ يَبَايِعُنَكَ
عَلَىٰ أَنْ لَا يُشْرِكْنَ بِاللَّهِ شَيْئًا وَلَا يَسْرِقْنَ وَلَا
يَزْنِينَ وَلَا يَقْتُلْنَ أَوْلَادَهُنَّ وَلَا يَأْتِينَ بِبُهْتَانٍ
يَفْتَرِيهِ بَيْنَ أَيْدِيهِنَّ وَأَرْجُلِهِنَّ وَلَا يَفْصِيكَ فِي
مَعْرُوفٍ قَبَائِعِهِنَّ وَأَسْتَغْفِرَنَّ اللَّهُ»
٤٧ (١٢:٦٠)

«وَإِنَّا الْمَوَدَّةَ سَلِّتُ، بِأَيِّ نَعْبٍ قُتِلَتْ»
(٩-٨:٨١)

⁴⁷ The phrase "nor bring any calumny that they may forge between their hands and their feet" has two different interpretations. Al-Qurtubî has pointed out that according to one view the phrase generally refers to adultery or those [women] who beget illegitimate children (by deceiving their husbands). While according to the other view, it refers to bewitching and bewitching - related acts. (see al-Qurtubî, *ibid.*, XVII, p.72-74. However, it may also bear the possibility of being a reference to abortion. However, the verse includes a difference of opinion in the reciting of the words *wa istaghfir lahun* (and ask God's forgiveness for them) based on the reading of al-Dûwrî. (see 'Umar and Makram, *ibid.*, vol.VII, p.133).

٤٧ طبقا لما أورده القرطبي في تفسيره أن النص «ولا يأتين ببهتن يفتريه بين أيديهن وأرجلهن» يحتمل تفسيران. الأول: أن النص عامة يحمل معنى الزنا أو النساء اللواتي يلحقن بأزواجهن أطفالا ليسوا من أصلابهم. الثاني: أن النص يشير إلى مضمون السحر (أنظر القرطبي، المرجع السابق، مج ١٧، ص ٧٢-٧٤). هذا ويحتمل النص أيضا المعنى المجازي للإجهاض. كما يرد في هذه الآية إختلاف في القراءة للفظ وأستغفر لهن وفقا لقراءة الدوري (أنظر عمر ومكرم، المرجع السابق، مج ٧، ص ١٢٢).

FACET 02 الوجه
SUBFACET 02 02 الوجه الفرعى

Waiting period

العدة

Waiting period and compulsorily

العدة والوجوب

"O you Prophet, when you divorce women, divorce them after their period, and count the period. And fear God, your Lord. Do not eject them from their homes; nor let them depart unless they commit a clear act of lewdness." (65:1)

«يَا أَيُّهَا النَّبِيُّ إِذَا طَلَقْتُمُ النِّسَاءَ فَطَلِقُوهُنَّ
لِعَدَّتِهِنَّ وَأَحْصُوا الْعِدَّةَ وَاتَّقُوا اللَّهَ رَبَّكُمْ
لَا تَطْرُدُوهُنَّ مِنْ بُيُوتِهِنَّ وَلَا يَخْرُجْنَ إِلَّا أَنْ
يَأْتِيَنَّ بِفَحِشَةٍ مُبِينَةٍ . . .» (١:٦٥)

Waiting period and intercourse

العدة والرفث

"O you who believe, if you marry believing women, and you divorce them before you touch them, you shall have no waiting period to reckon on them . . ." (33:49)

«يَا أَيُّهَا الَّذِينَ آمَنُوا إِذَا نَكَحْتُمُ الْمُؤْمِنَاتِ ثُمَّ
طَلَقْتُمُوهُنَّ مِنْ قَبْلِ أَنْ تَمْسُوهُنَّ فَمَا لَكُمْ عَلَيْهِنَّ
مِنْ عِدَّةٍ تَعْتَدُونَهَا . . .» (٤٩:٣٣)

Waiting period and menstruation

العدة والمحيض

"Divorced women shall wait by themselves three menstrual courses . . ." (2:228)⁵⁰

«وَالْمُطَلَّقَاتُ يَتَرَبَّصْنَ بِأَنْفُسِهِنَّ ثَلَاثَةَ قُرُوءٍ
. . .» (٢:٢٢٨) ٥٠

Waiting period and months

العدة والشهور

"And those of your women who despaired of menstruating, if you are in doubt, (during the waiting period) then their waiting period shall be three months; and those too who have not menstruated as yet . . ." (65:4)

«وَالَّذِي يَنْسَى مِنَ الْمَحِيضِ مِنْ نِسَائِكُمْ إِنْ
أَرَبْتُمْ فَعِدَّتُهُنَّ ثَلَاثَةُ أَشْهُرٍ وَالَّذِي لَمْ يَحِضْ
. . .» (٤:٦٥)

Waiting period and pregnancy

العدة والحمل

". . . . And those who are pregnant, their term is when they deliver their burden . . ." (65:4)

« وَأُولَاتُ الْأَحْمَالِ أَجَلُهُنَّ أَنْ يَضَعْنَ
حَمْلَهُنَّ . . .» (٤:٦٥)

⁵⁰ This verse is related to an occasion(s) of revelation (see al-Suyûfî, *ibid.*, p.40).

^{٥٠} هذه الآية يصاحبها سبب نزول (انظر السيوطي، المرجع السابق، ص ٤٠).

Waiting period and maintenance

العدة والنفقة

"Let them dwell wherever you dwell, according to your means; and do not harass them, so as to straiten circumstances against them" (65:6)

«أَسْكِنُوهُنَّ مِمَّنْ حَيْثُ سَكَنْتُمْ مِمَّنْ وَجَدِكُمْ
وَلَا تُضَارِرُوهُنَّ لِتَضْيِقُوا عَلَيْهِنَّ» (٦٠:٦٥)

Waiting period and first/second time

العدة والطلاق الرجعى

"If you divorce women, and they reach their term, either retain them with kindness, or let them go with kindness. But retain them not intending to hurt them in transgression, for whoever does that will be iniquitous to himself" (2:231)⁵¹

«وَإِنَّا مَلَاقَتُمُ النِّسَاءَ فَلْيُفَنِّ أَجَلَهُنَّ فَأَمْسِكُوهُنَّ
بِمَعْرُوفٍ أَوْ سَرِّحُوهُنَّ بِمَعْرُوفٍ وَلَا تُمْسِكُوهُنَّ
ضُرَارًا لِّتَعْتَدُوا وَمَنْ يَفْعَلْ ذَلِكَ فَقَدْ ظَلَمَ نَفْسَهُ
. . . .» (٢٣١:٢) ٥١

"And if they reach their set time, then retain them in kindness, or depart from them in kindness. And call in two just witnesses from amongst yourselves, and observe the witnessing for God" (65:2)

«فَإِنَّا بَلَّغْنَ أَجَلَهُنَّ فَأَمْسِكُوهُنَّ بِمَعْرُوفٍ أَوْ
فَارِقُوهُنَّ بِمَعْرُوفٍ وَأَشْهِدُوا ثَوْنَيْنِ عَدْلٍ مِّنكُمْ
وَأَقِيمُوا الشَّهَادَةَ لِلَّهِ» (٢:٦٥)

Waiting period and death

العدة والموت

"Those of you who die and leave wives behind, they shall wait by themselves four months and ten (days). Then when they reach the end of their term, it is no sin on you that they do for themselves (what they desire) in honour" (2:234)

«وَالَّذِينَ يُتَوَفَّوْنَ مِنْكُمْ وَيَذَرُونَ أَزْوَاجًا يَتَرَبَّصْنَ
بِأَنْفُسِهِنَّ أَرْبَعَةَ أَشْهُرٍ وَعَشْرًا فَإِنَّا بَلَّغْنَ أَجَلَهُنَّ
فَلَا جُنَاحَ عَلَيْكُمْ فِيمَا فَعَلْنَ فِي أَنْفُسِهِنَّ
بِالْمَعْرُوفِ» (٢٣٤:٢)

⁵¹ This verse includes a difference of opinion in the reciting of the word *zalama* (iniquitous) based on the reading of Warsh. (see 'Umar and Makram, *ibid.*, vol.I, p.176). This verse is also related to an occasion(s) of revelation (see al-Suyûfî, *ibid.*, p.42).

٥١ يرد في هذه الآية إختلاف في القراءة للفظ ظلم وفقاً لقراءة ورش (أنظر عمر ومكرم، المرجع السابق، مج ١، ص ١٧٦). كما يصاحب هذه الآية سبب نزول (أنظر السيوطي، المرجع السابق، ص ٤٢).

Lineage and marriage

النسب والنكاح

"And marry not the woman whom your fathers have married, save what already has happened in the past, for it is lewdness and abomination, and an evil way. Forbidden you are your mothers, and your daughters, and your sisters, and your aunts (paternal and maternal) and your nieces, and your mothers who have suckled you, and your suckling sisters, and your wives' mothers, and your step-daughters who are in your care, from wives whom you have consorted with. But if you have not consorted with them, then it is no sin for you. And (forbidden) are the wives of your sons who are from your own loins . ." (4:22-23)⁵²

"And (forbidden you also) are the married women except whom your right hands possess. So are God's commands to you" (4:24)

"The adulterer shall not marry but an adulteress or an idolatress, and the adulteress, none shall marry her except an adulterer or an idolater. And that (adultery) is forbidden to believers." (24:3)⁵³

". . . . Then when Zayd had consummated her, We married her to you, so that there may be no sin for the believers in (marrying) the wives of their adherents if they consummated them" (33:37)⁵⁴

⁵² This verse is related to an occasion(s) of revelation (see al-Wâhidî, *ibid.*, p.84).

⁵³ This verse is related to an occasion(s) of revelation (see al-Suyûfî, *ibid.*, p.192).

⁵⁴ This verse includes a difference of opinion in the reciting of the word *qadâ* (had consummated) based on the reading of Warsh. (see 'Umar and Makram, *ibid.*, vol.V, p.126). The verse also is related to an occasion(s) of revelation (see al-Suyûfî, *ibid.*, pp.227-228).

«وَلَا تَنْكِحُوا مَا نَكَحَ آبَاؤُكُمْ مِنَ النِّسَاءِ إِلَّا مَا قَدْ سَلَفَ إِنَّهُ كَانَ فَحِشَةً وَمَقْتًا وَسَاءَ سَبِيلًا، حُرِّمَتْ عَلَيْكُمْ أُمَّهَاتُكُمْ وَبَنَاتُكُمْ وَأَخَوَاتُكُمْ وَعَمَّاتُكُمْ وَخَالَاتُكُمْ وَبَنَاتُ الْأَخِ وَبَنَاتُ الْأَخْتِ وَأُمَّهَاتُكُمُ النِّسَاءِ أَرْضَعْنَكُمْ وَأَخَوَاتُكُمُ مِنَ الرِّضَاعِ وَأُمَّهَاتُ نِسَائِكُمْ وَرَبِّبَاتِكُمُ النِّسَاءِ فِي حُجُورِكُمْ مِمَّنْ نِسَائِكُمُ اللَّاتِي دَخَلْتُمْ بِهِنَّ فَإِنْ لَمْ تَكُونُوا دَخَلْتُمْ بِهِنَّ فَلَا جُنَاحَ عَلَيْكُمْ وَحَلَائِلَ أَبْنَائِكُمُ الَّذِينَ مِنْ أَصْلَابِكُمْ . . .» (٢٣-٢٢:٤) ٥٢

«وَالْمُحْصَنَاتُ مِنَ النِّسَاءِ إِلَّا مَا مَلَكَتْ أَيْمَانُكُمْ كِتَابَ اللَّهِ عَلَيْكُمْ . . .» (٢٤:٤)

«الزَّانِي لَا يَنْكِحُ إِلَّا زَانِيَةً أَوْ مُشْرِكَةً وَالزَّانِيَةُ لَا يَنْكِحُهَا إِلَّا زَانٍ أَوْ مُشْرِكٌ وَحُرِّمَ عَلَيْكَ عَلَى الْمُؤْمِنِينَ» (٣:٢٤) ٥٣

« فَلَمَّا قَضَى زَيْدٌ مِنْهَا وَطَرًا زَوَّجْنَاكَهَا لَكِنْ لَا يَكُونُ عَلَى الْمُؤْمِنِينَ حَرَجٌ فِي أَزْوَاجِ أَدْعِيَائِهِمْ إِنْ آتَوْا قَضَاؤًا مِنْهُنَّ وَطَرًا» (٣٧:٣٣) ٥٤

^{٥٢} هذه الآية يصاحبها سبب نزول (أنظر الواحدى، المرجع السابق، ص ٨٤).

^{٥٣} هذه الآية يصاحبها سبب نزول (أنظر السيوطى، المرجع السابق، ص ١٩٢).

^{٥٤} يرد في هذه الآية إختلاف في القراءة للفظ قَضَى وفقا لقراءة ورش (أنظر عمر ومكرم، المرجع السابق، ص ٥، ص ١٢٦). كما يصاحب هذه الآية سبب نزول (أنظر السيوطى، المرجع السابق، ص ٢٢٧-٢٢٨).

Lineage and pregnancy

النسب والحمل

"O Prophet, when believing women come to you, swearing allegiance to you that they will not ascribe anything to God; neither will they steal nor commit whoredom, nor slay their children, nor bring any calumny that they may forge between their hands and their feet, nor disobey you in a good turn; then seal a pledge with them, and ask God's forgiveness for them" (60:12)⁵⁵

«يَتَّيِبَهَا النَّبِيُّ إِذَا جَاءَكَ الْمُؤْمِنَاتُ يُبَايِعُنَكَ عَلَنَ أَنْ لَا يُشْرِكْنَ بِاللَّهِ شَيْئًا وَلَا يَسْرِقْنَ وَلَا يَزْنِينَ وَلَا يَقْتُلْنَ أَوْلَادَهُنَّ وَلَا يَأْتِينَ بِبُهْتَانٍ يَفْتَرِينَهُ بَيْنَ أَيْدِيهِنَّ وَأَرْجُلِهِنَّ وَلَا يَعْصِينَكَ فِي مَعْرُوفٍ فَبَايِعْهُنَّ وَأَسْتَغْفِرْ لَهُنَّ اللَّهُ» (١٢:٦٠) ٥٥

". . . . it shall not be licit for them to conceal what God has created in their wombs, if they truly believe in God and the Last Day" (2:228)⁵⁶

«. . . . وَلَا يَحِلُّ لَهُنَّ أَنْ يَكْتُمْنَ مَا خَلَقَ اللَّهُ مِنْ أَرْحَامِهِنَّ إِنْ كُنَّ يُؤْمِنُ بِاللَّهِ وَالْيَوْمِ الْآخِرِ» (٢:٢٢٨) ٥٦

⁵⁵ The phrase "nor bring any calumny that they may forge between their hands and their feet" has two different interpretations. Al-Qurṭubî has pointed out that according to one view the phrase generally refers to adultery or those [women] who beget illegitimate children (by deceiving their husbands). While according to the other view, it refers to bewitching and bewitching - related acts. (see al-Qurṭubî, *ibid.*, XVII, p.72-74. However, it may also bear the possibility of being a reference to abortion. However, the verse includes a difference of opinion in the reciting of the words *wa istaghfir lahun* (and ask God's forgiveness for them) based on the reading of al-Dûwrî. (see 'Umar and Makram, *ibid.*, vol.VII, p.133).

^{٥٥} طبقا لما أورده القرطبي في تفسيره أن النص «ولا يأتين ببهتن يفتريه بين أيديهن وأرجلهن» يحتمل تفسيران. الأول: أن النص عامة يحمل معنى الزنا أو النساء اللواتي يلحقن بأزواجهن أطفالا ليسوا من أصلابهم. الثاني: أن النص يشير إلى مضمون السحر (أنظر القرطبي، المرجع السابق، مج ١٧، ص ٧٢-٧٤). هذا ويحتمل النص أيضا المعنى المجازي للإجهاض. كما يرد في هذه الآية إختلاف في القراءة للفظ وأستغفر لهن وفقا لقراءة الدوري (أنظر عمر ومكرم، المرجع السابق، مج ٧، ص ١٢٣).

⁵⁶ This verse includes a difference of opinion in the reciting of the word *ann yaktumna* (to conceal) based on the reading of al-Dûwrî. (see 'Umar and Makram, *ibid.*, vol.I, p.174).

^{٥٦} يرد في هذه الآية إختلاف في القراءة للفظ أن يَكْتُمْنَ وفقا لقراءة الدوري (أنظر عمر ومكرم، المرجع السابق، مج ١، ص ١٧٤).

Adoption

التبني

"... nor has He made whom you claim to be as your sons, your sons. That is your saying of your own mouths. But God says the truth and guides on the path. Call them after their (natural) fathers, that will be more equitable in the consideration of God...." (33:4-5)

«... وَمَا جَعَلَ أَدْعِيَاءَكُمْ أَبْنَاءَكُمْ نَزَّلَكُمْ قَوْلَكُمْ بِأَفْوَاهِكُمْ وَاللَّهُ يَقُولُ الْحَقَّ وَهُوَ يَهْدِي السَّبِيلَ، أَدْعُوهُمْ لِأَبَائِهِمْ هُوَ أَقْسَطُ عِنْدَ اللَّهِ...» (٥-٤:٣٣)

"Mohammed is not a father of any one of your men, but he is the Messenger of God and the Seal of prophets...." (33:40)

«مَا كَانَ مُحَمَّدٌ أَبَا أَحَدٍ مِّن رِّجَالِكُمْ وَلَكِن رَّسُولَ اللَّهِ وَخَاتَمَ النَّبِيِّينَ...» (٤٠:٣٣)

Malediction

اللعان

"And those who accuse their wives but have no witnesses save their own selves, then the testimony of each of them shall be to swear by God four times that he is (one) of the veracious. And the fifth time God's malediction shall fall upon him, should he be of the liars. And He shall avert the torment from her if she swears by God four times that he is surely one of the liars. And the fifth, surely God's wrath will fall upon her if he is one of the veracious." (24:6-9)⁵⁷

«وَالَّذِينَ يَزْمُونَ أَزْوَاجَهُمْ وَلَمْ يَكُن لَّهُمْ شُهَدَاءُ إِلَّا أَنفُسُهُمْ فَشَهَدَتْ أَحَدُهُمْ أَرْبَعَ شَهَدَاتٍ بِاللَّهِ إِنَّهُ لَمِنَ الصَّادِقِينَ، وَالْخَامِسَةَ أَنَّ لَعْنَتَ اللَّهِ عَلَيْهِ إِنْ كَانَ مِنَ الْكَاذِبِينَ، وَيَدْرَأُ عَنْهَا الْعَذَابَ أَنْ تَشْهَدَ أَرْبَعَ شَهَدَاتٍ بِاللَّهِ إِنَّهُ لَمِنَ الْكَاذِبِينَ، وَالْخَامِسَةَ أَنَّ غَضَبَ اللَّهِ عَلَيْهَا إِنْ كَانَ مِنَ الصَّادِقِينَ» (٥٧ (٩-٦:٢٤)

⁵⁷ This verse is related to an occasion(s) of revelation (see al-Suyûfî, *ibid.*, pp.193-194).

^{٥٧} هذه الآية يصاحبها سبب نزول (أنظر السيوطي، المرجع السابق، ص ١٩٣-١٩٤).

FACET 02 الوجه
SUBFACET 02 03 الوجه الفرعى

Pregnancy

الحمل

Pregnancy and concealment

الحمل والكتمان

"... it shall not be licit for them to conceal what God has created in their wombs, if they truly believe in God and the Last Day" (2:228)⁵⁸

« وَلَا يَجِزُ لَهُنَّ أَنْ يَكْتُمْنَ مَا خَلَقَ اللَّهُ مِنْ أَرْحَامِهِنَّ إِنْ كُنَّ يُؤْمِنَنَّ بِاللَّهِ وَالْيَوْمِ الْآخِرِ »
« » (٢:٢٢٨) ٥٨

Pregnancy and maintenance

الحمل والنفقة

"... And if they are pregnant, then spend on them until they deliver their burden" (65:6)

« وَإِنْ كُنَّ أَوْلَاتٍ حَمَلٌ فَأَنْفِقُوا عَلَيْهِنَّ حَتَّىٰ يَضَعْنَ حَمْلَهُنَّ »
« » (٦٥:٦)

Pregnancy and waiting period

الحمل والعدة

"... And those who are pregnant, their term is when they deliver their burden. . . ." (65:4)

« وَأَوْلَاتُ الْأَحْمَالِ أَجَلُهُنَّ أَنْ يَضَعْنَ حَمْلَهُنَّ »
« » (٦٥:٤)

Pregnancy and breastfeeding

الحمل والرضاعة

"... His mother bore him with weariness and gave him birth with tediousness. And the bearing and the weaning of him thirty months . . ." (46:15)

« حَمَلَتْهُ أُمُّهُ كُرْهًا وَوَضَعَتْهُ كُرْهًا وَحَمَلُهُ وَفِصْلُهُ ثَلَاثُونَ شَهْرًا »
« » (١٥:٤٦)

Breastfeeding

الرضاعة

Breastfeeding and marriage

الرضاعة والنكاح

"... And (forbidden) your mothers who have suckled you, and your suckling sisters . . ." (4:23)

« وَأُمَّهَاتُكُمُ اللَّاتِي أَرْضَعْنَكُمْ وَأَخَوَاتُكُم مِّنَ الرَّضَاعَةِ »
« » (٢٣:٤)

⁵⁸ This verse includes a difference of opinion in the reciting of the word *ann yaktumna* (to conceal) based on the reading of al-Dûwrî. (see 'Umar and Makram, *ibid.*, vol.I, p.174).

^{٥٨} يرد في هذه الآية إختلاف في القراءة للفظ *أَنْ يَكْتُمْنَ* وفقًا لقراءة الدورى (انظر عمر ومكرم، المرجع السابق، ص ١٧٤).

Breastfeeding and Pregnancy

" His mother bears him in weakness upon weakness, and his weaning is in two years " (31:14)

" His mother bore him with weariness and gave him birth with tediousness. And the bearing and the weaning of him thirty months" (46:15)

الرضاعة والحمل

« حَمَلَتْهُ أُمُّهُ وَهْنًا عَلَيَّ وَهْنٍ وَفِصْلُهُ فِي سِنَيْنِ » (١٤: ٣١)

« حَمَلَتْهُ أُمُّهُ كُرْهًا وَوَضَعَتْهُ كُرْهًا وَحَمَلُهُ وَفِصْلُهُ ثَلَاثُونَ شَهْرًا » (١٥: ٤٦)

Breastfeeding and complete period

"Mothers are to suckle their children two complete years, for whoever so desires to complete suckling" (2:233)

الرضاعة وكامل المدة

« وَالْوَالِدَاتُ يُرْضِعْنَ أَوْلَادَهُنَّ حَوْلَيْنِ كَامِلَيْنِ لِمَنْ أَرَادَ أَنْ يُتِمَّ الرَّضَاعَةَ » (٢٣٣: ٢)

Breastfeeding and consultation

" But if they desire to wean the child through consent and consultation, then it is no sin on them" (2:233)⁵⁹

الرضاعة والتراضى

« فَإِنْ أَرَادَا فِصَالًا عَنْ تَرَاضٍ مِنْهُمَا وَتَشَاوُرٍ فَلَا جُنَاحَ عَلَيْهِمَا » (٢٣٣: ٢) ٥٩

Breastfeeding and maintenance

" And if they suckle for you, then pay them their wages, and consult one another in kindness" (65:6)

الرضاعة والنفقة

« فَإِنْ أَرْضَعْنَ لَكُمْ فَآتُوهُنَّ أُجُورَهُنَّ وَأَمِيرُوا بَيْنَكُمْ بِمَعْرُوفٍ » (٦٥: ٦)

Nursing

الرضاعة

" But if you wish to seek nursing for your children then it is no guilt on you if you deliver what you have given with kindness. . . ." (2:233)

« وَإِنْ أَرَدْتُمْ أَنْ تَسْتَرْضِعُوا أَوْلَادَكُمْ فَلَا جُنَاحَ عَلَيْكُمْ إِذَا سَلَّمْتُمْ مَا آتَيْتُمْ بِالْمَعْرُوفِ » (٢٣٣: ٢)

⁵⁹ This verse includes a difference of opinion in the reciting of the word *fiṣḥālan* (to wean the child) based on the reading of Warsh. (see 'Umar and Makram, *ibid.*, vol.I, p.179).

^{٥٩} يرد في هذه الآية إختلاف في القراءة للفظ *فِصَالًا* وفقًا لقراءة ورش (أنظر عمر ومكرم، المرجع السابق، مج ١، ص ١٧٩).

". . . . And if they suckle for you, then pay them their wages, and consult one another in kindness. But if you differ then let another woman suckle for him. Let him who is affluent expend from his affluence. And let him whose provision has been straitened (by God) expend from what God has given him; for God charges no living soul except according to what He has bestowed upon it. Surely God shall make ease after hardship." (65:6-7)⁶⁰

« فَإِنْ أَرْضَعْنَ لَكُمْ فَآتُوهُنَّ أُجُورَهُنَّ
وَأْتَمِرُوا بَيْنَكُمْ بِمَعْرُوفٍ وَإِنْ تَعَاَسَرْتُمْ فَسْتَزْعِ
لَهُ الْاُخْرَىٰ، لِيُنْفِقَ نُورَ سَعَةٍ مِّنْ سَعَتِهِ وَمَنْ قَدِرَ
عَلَيْهِ رِزْقُهُ فَلْيُنْفِقْ مِمَّا آتَاهُ اللَّهُ لَا يُكَلِّفُ اللَّهُ
نَفْسًا إِلَّا مَا آتَاهَا سَيَجْعَلُ اللَّهُ بَعْدَ عُسْرٍ
يُسْرًا» (٦٥:٦-٧) ٦٠

FACET	02	الوجه
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Upbringing

التربية

Upbringing and religion

التربية والدين

"And (remember) when Abraham raised up the foundations of the House, together with Ismael: 'Our Lord, accept this from us. You, are the All-Hearing, the All-knowing.' 'Our Lord, make us submissive to You, and of our progeny a submissive nation to You, and show us our rites, and relent toward us, for You are the Relenting, the Merciful." (2:127-128)

«وَإِذْ يَرْفَعُ إِبْرَاهِيمُ الْقَوَاعِدَ مِنَ الْبَيْتِ
وَإِسْمَاعِيلُ رَبَّنَا تَقَبَّلْ مِنَّا إِنَّكَ أَنْتَ السَّمِيعُ
الْعَلِيمُ رَبَّنَا وَاجْعَلْنَا مُسْلِمِينَ لَكَ وَمِنْ نُورِنَا
أُمَّةٌ مُّسْلِمَةٌ لَّكَ وَارِنَا مَنَاسِكَنَا وَتُبْ عَلَيْنَا إِنَّكَ
أَنْتَ التَّوَّابُ الرَّحِيمُ» (١٢٧:٢-١٢٨)

"When his Lord said to him, 'Surrender, he said, 'I surrender to the Lord of the worlds.' And with this did Abraham bequeath his children, and Jacob: 'O my children, God has chosen for you the religion. So depart not this life unless you are Moslems (surrenderers to God).'" (2:131-132)⁶¹

«إِذْ قَالَ لَهُ رَبُّهُ أَسْلِمْ قَالَ أَسْلَمْتُ لِرَبِّ الْعَالَمِينَ
وَوَصَّىٰ بِهَا إِبْرَاهِيمُ بَنِيهِ وَيَعْقُوبُ يَبْنَئِ إِنَّ اللَّهَ
أَصْطَفَىٰ لَكُمْ الدِّينَ فَلَا تَمُوتُنَّ إِلَّا وَأَنْتُمْ
مُسْلِمُونَ» (١٣١:٢-١٣٢) ٦١

⁶⁰ This verse includes a difference of opinion in the reciting of a word *ukhrâ* (another woman) based on the reading of Warsh and Qâlûn. (see 'Umar and Makram, *ibid.*, vol.VII, p.169).

^{٦٠} يرد في هذه الآية إختلاف في القراءة للفظ الْاُخْرَىٰ وفقا لقراءة ورش وقالون (أنظر عمر ومكرم، المرجع السابق، مج ٧، ص ١٦٩).

⁶¹ This verse includes a difference of opinion in the reciting of the words *wa wasâ* (bequeath) and *iṣṭafâ* (has chosen) based on the reading of Warsh. (see 'Umar and Makram, *ibid.*, vol.I, p.117).

^{٦١} يرد في هذه الآية إختلاف في القراءة للفظ وَوَصَّىٰ وَلِغْظِ أَصْطَفَىٰ وفقا لقراءة ورش (أنظر عمر ومكرم، المرجع السابق، مج ١، ص ١١٧).

"... And Noah called to his son who stood isolated, 'O my son embark with us and be not among the unbelievers.'" (11:42)⁶²

«... وَنَادَى نُوحٌ ابْنَهُ وَكَانَ فِي مَعْزِلٍ يَبْنَى
أَرْكَبَ مَعَنَا وَلَا تَكُنْ مَعَ الْكَافِرِينَ» (٤٢:١١) ٦٢

"And when Abraham said, 'My Lord, make this land safe, and turn me and my sons from worshipping the idols.'" (14:35)

«وَإِذْ قَالَ إِبْرَاهِيمُ رَبِّ اجْعَلْ هَذَا الْبَلَدَ آمِنًا
وَاجْنُبْنِي وَبَنِيَّ أَنْ نَعْبُدَ الْأَصْنَامَ» (٣٥:١٤)

"And when Luqmân said to his son, exhorting him, 'O my son, associate nothing with God, for surely imputing (other gods to God) is a great iniquity.'" (31:13)

«وَإِذْ قَالَ لُقْمَانُ لِابْنِهِ وَهُوَ يَعِظُهُ يَبْنَى لَا تُشْرِكْ
بِاللَّهِ إِنَّ الشِّرْكَ لَظُلْمٌ عَظِيمٌ» (١٣:٣١)

"O my son, observe the prayer, and enjoin the good turn, and forbid abomination and persevere in whatever may befall you, for surely that is from firm resolution." (31:17)

«يَبْنَى أَقِمِ الصَّلَاةَ وَأْمُرْ بِالْمَعْرُوفِ وَانْهَ عَنِ
الْمُنْكَرِ وَأَصْبِرْ عَلَى مَا أَصَابَكَ إِنَّ نَلِكَ مِنَ عَزْمِ
الْأُمُورِ» (١٧:٣١)

Upbringing and children rights

التربية وحقوق الأبناء

"... Their husbands have more right to restore them in such a state, if they so desire to reconcile. And they (women) have rights similar to their obligations in all equity..." (2:228)⁶³

«... وَبِعَوَلْتِهِنَّ أَحَقُّ بِرَبِّهِنَّ فِي نَلِكَ إِنْ
أَرَادُوا إِصْلَاحًا وَلَهُنَّ مِثْلُ الَّذِي عَلَيْهِنَّ
بِالْمَعْرُوفِ» (٢٢٨:٢) ٦٢

"No compulsion is there in religion, for rectitude is henceforth distinct from perversity..." (2:256)⁶⁴

«لَا إِكْرَاهَ فِي الدِّينِ قَدْ تَبَيَّنَ الرُّشْدُ مِنَ الْغَيِّ
...» (٢٥٦:٢) ٦٤

⁶² This verse includes a difference of opinion in the reciting of the words *irkab ma'anâ* (embark with us) and *al-kâfirîn* (the unbelievers) based on the readings of Warsh, al-Dûwrî, and Qâlûn. (see 'Umar and Makram, *ibid.*, vol.III, pp.113-114).

٦٢ يرد في هذه الآية إختلاف في القراءة للفظ أركب مَعَنَا ولفظ الْكَافِرِينَ وفقاً لقراءة ورش والدورى وقالون (أنظر عمر ومكرم، المرجع السابق، مج ٢ ص ١١٢-١١٤).

⁶³ This verse has the possibility of abrogation being abrogated by verses 229-230 chapter 2 (see Ibn al-Bârizî, *ibid.*, pp.26-27).

٦٣ تحتمل هذه الآية إمكانية النسخ بالآيتين ٢٢٩-٢٣٠ من سورة ٢ (أنظر ابن البارزى، المرجع السابق، ص ٢٦-٢٧).

⁶⁴ This verse is related to an occasion(s) of revelation (see al-Suyûfî, *ibid.*, pp.44-45).

٦٤ هذه الآية يصاحبها سبب نزول (أنظر السيوطى، المرجع السابق، ص ٤٤-٤٥).

"And if you fear discord between the two, then send forth an arbiter from his folk and an arbiter from her folk, if they both desire amendment God will reconcile between them" (4:35)

«وَإِنْ خِفْتُمْ شِقَاقَ بَيْنِهِمَا فَابْعَثُوا حَكَمًا مِّنْ أَهْلِهِ وَحَكَمًا مِّنْ أَهْلِهَا إِن يُرِيدَا إِصْلَاحًا يُّوفِّقُ اللَّهُ بَيْنَهُمَا» (٣٥:٤)

"He said, 'O my son, do not narrate your vision to your brethren lest they should contrive against you some artifice. Truly Satan is a manifest foe of man.'" (12:5)⁶⁵

«قَالَ يَبْنَى لَاتَقْصَصْ رُؤْيَاكَ عَلَن إِخْوَتِكَ فَيَكِيدُوا لَكَ كَيْدًا إِنَّ الشَّيْطَانَ لِلْإِنْسَانِ عَدُوٌّ مُّبِينٌ» (٥:١٢) ٦٥

Upbringing and parent's rights

التربية وحقوق الآباء

"And when Abraham said to his father Azar, 'Do you take idols for gods? I truly see you and your folk in blatant perversity.'" (6:74)

«وَإِذْ قَالَ إِبْرَاهِيمُ لِأَبِيهِ أَأَتَّخِذُ أَصْنَامًا ءَالِهَةً إِنِّي أُنَظِرُكَ وَقَوْمَكَ فِي ضَلَالٍ مُّبِينٍ» (٧٤:٦)

"And We have commanded on man concerning his parents" (31:14)

«وَوَصَّيْنَا الْإِنْسَانَ بِوَالِدَيْهِ» (١٤:٣١)

"But if they endeavour with you to make you impute associates to Me, that of which you have no knowledge, then do not obey them; keep their company in this world in kindness, and follow the path of him who turns to Me (in penitence). To Me shall be your return, then I shall apprise you of what you were doing." (31:15)⁶⁶

«وَإِنْ جَاهِدَاكَ عَلَيَّ أَنْ تُشْرِكَ بِي مَا لَيْسَ لَكَ بِهِ عِلْمٌ فَلَا تُطِعْهُمَا وَصَاحِبَهُمَا فِي الدُّنْيَا مَعْرُوفًا ۗ وَاتَّبِعْ سَبِيلَ مَنْ أَنَابَ إِلَيَّ ثُمَّ إِلَيَّ مَرْجِعُكُمْ فَأُنَبِّئُكُمْ بِمَا كُنْتُمْ تَعْمَلُونَ» (١٥:٣١) ٦٦

"And We have commanded on man kindness toward his parents" (46:15)

«وَوَصَّيْنَا الْإِنْسَانَ بِوَالِدَيْهِ إِحْسَانًا» (١٥:٤٦)

⁶⁵ This verse includes a difference of opinion in the reciting of the word *ru'yâka* (your vision) based on the readings of Warsh and al-Dûrî. (see 'Umar and Makram, *ibid.*, vol.III, p.148).

٦٥ يرد في هذه الآية اختلاف في القراءة رُؤْيَاكَ وفقاً لقراءة ورش والدورى (أنظر عمر ومكرم، المرجع السابق، مج ٣، ص ١٤٨).

⁶⁶ This verse includes a difference of opinion in the reciting of the word *al-dunyâ* (this world) based on the reading of Warsh. (see 'Umar and Makram, *ibid.*, vol.V, p.86).

٦٦ يرد في هذه الآية اختلاف في القراءة للفظ الدُّنْيَا وفقاً لقراءة ورش (أنظر عمر ومكرم، المرجع السابق، مج ٥، ص ٨٦).

Upbringing and manners

"He said, O my sons, enter not by one gate; enter by separate gates" (12:67)

"O my sons, go in search of Joseph and his brother" (12:87)

"O you who believe, let those whom your right hands possess, and those of you who have not become pubescent, ask leave of you at three times: before the dawn prayer, and when you lay aside your raiment at mid-day, and after the night prayer. Three times of privacy for you. It is no sin for you, nor for them thereafter, when you go round attending one another. Thus God elucidates to you the signs, for God is Omniscient, Wise. And when the children among you reach puberty, let them then ask leave, as those before them asked" (24:58-59)⁶⁷

"And turn not your cheek in scorn toward people, and walk not in the land struttingly, for God loves no one swaggering, boastful. And be midmost in your walk, and lower your voice, for indeed the most repulsive voice is the voice of asses." (31:18-19)

"And when he reached (the age of) working with him, he said, 'My son, I have seen in a dream that I should sacrifice you. Consider, what do you think?' He said, 'O my father, do what you are ordained; you shall find me, God willing, amongst the steadfast.'" (37:102)⁶⁸

⁶⁷ This verse includes a difference of opinion in the reciting of the word *li-yastadhnikum* (ask leave of you) based on the reading of Warsh. (see 'Umar and Makram, *ibid.*, vol.IV, p.267).

⁶⁸ This verse includes a difference of opinion in the reciting of the words *arâ* (I have seen) and *tarâ* (you think) based on the reading of Warsh. (see 'Umar and Makram, *ibid.*, vol.V, p.242).

التربية والأخلاق

«وَقَالَ يَبْنَى لَاتَدْخُلُوا مِنْ بَابٍ وَاحِدٍ وَادْخُلُوا مِنْ أَبْوَابٍ مُتَفَرِّقَةٍ» (١٢:٦٧)

«يَبْنَى أَنْبِؤا فَتَحَسَّسُوا مِنْ يُوْسُفَ وَأَخِيهِ» (١٢:٨٧)

«يَأَيُّهَا الَّذِينَ ءَامَنُوا لِيَسْتَأْذِنَكُمْ الَّذِينَ مَلَكَتْ أَيْمَانُكُمْ وَالَّذِينَ لَمْ يَبْلُغُوا الْحُلُمَ مِنْكُمْ ثَلَاثَ مَرَّاتٍ مِنْ قَبْلِ صَلَاةِ الْفَجْرِ وَحِينَ تَضَعُونَ ثِيَابَكُمْ مِنَ الظُّهْرِ وَمِنْ بَعْدِ صَلَاةِ الْعِشَاءِ ثَلَاثُ عَوْرَاتٍ لَكُمْ لَيْسَ عَلَيْكُمْ وَلَا عَلَيْهِمْ جُنَاحٌ بَعْدَهُنَّ طَوْفُونَ عَلَيْكُمْ بَعْضُكُمْ عَلَى بَعْضٍ كَذَلِكَ يُبَيِّنُ اللَّهُ لَكُمْ الْآيَاتِ وَاللَّهُ عَلِيمٌ حَكِيمٌ وَإِنَّا بَلَّغُ الْأَطْفَالَ مِنْكُمْ الْحُلُمَ فَلْيَسْتَأْذِنُوا كَمَا اسْتَأْذَنَ الَّذِينَ مِنْ قَبْلِهِمْ» (٢٤:٥٨-٥٩) ٦٧

«وَلَا تَصَعَّرْ خَدَكَ لِلنَّاسِ وَلَا تَمْشِ فِي الْأَرْضِ مَرْحًا إِنَّ اللَّهَ لَا يُحِبُّ كُلَّ مُخْتَالٍ فَخُورٍ، وَأَقْصِدْ فِي مَشْيِكَ وَأَغْضُضْ مِنْ صَوْتِكَ إِنَّ أَنْكَرَ الْأَصْوَاتِ لَصَوْتُ الْحَمِيرِ» (٣١:١٨-١٩)

«فَلَمَّا بَلَغَ مَعَهُ السَّعْيَ قَالَ يَبْنَى إِنَّتِ أَرَى فِي الْمَنَامِ أَنْتِ أَنْبِئِكِ فَنَنْظُرُ مَا نَا تَرَى قَالَ يَنَابِتِ أَفْعَلِ مَا تُؤْمَرُ سَتَجِدُنِي إِنْ شَاءَ اللَّهُ مِنْ الصَّابِرِينَ» (١٠٢:٣٧) ٦٨

^{٦٧} يرد في هذه الآية إختلاف في القراءة للفظ *لِيَسْتَأْذِنَكُمْ* وفقا لقراءة ورش (أنظر عمر ومكرم، المرجع السابق، مج ٤، ص ٢٦٧).

^{٦٨} يرد في هذه الآية إختلاف في القراءة للفظ *أَرَى* ولفظ *تَرَى* وفقا لقراءة ورش (أنظر عمر ومكرم، المرجع السابق، مج ٥، ص ٢٤٢).

FACET 03
SUBFACET 03 01

الوجه
الوجه الفرعى

Bequeath

الوصية

Bequeath and death

الوصية والموت

"Decreed for yours that, when one of you approaches death, if he leaves wealth, he makes a will bequeathing equitably to the parents and kinsmen (and kinswomen). (That is) a duty on the godfearing. Yet, whoever changes it after he has heard it, the sin for it shall surely fall on those who change it. Verily, God is All-Hearing, All-knowing. But whoever fears deviation or sinful tendency from a testator and makes things right between them, no sin shall rest upon him" (2:180-182)⁶⁹

«كُتِبَ عَلَيْكُمْ إِذَا حَضَرَ أَحَدَكُمُ الْمَوْتُ إِنْ تَرَكَ خَيْرًا الْوَصِيَّةَ لِلْوَالِدَيْنِ وَالْأَقْرَبِينَ بِالْمَعْرُوفِ حَقًّا عَلَى الْمُتَّقِينَ، فَمَنْ بَدَّلَهُ بَعْدَ مَا سَمِعَهُ فَإِنَّمَا إِثْمُهُ عَلَى الَّذِينَ يُبَدِّلُونَهُ إِنَّ اللَّهَ سَمِيعٌ عَلِيمٌ، فَمَنْ خَافَ مِنْ مَوْسٍ جَنَفًا أَوْ إِثْمًا فَأَصْلَحَ بَيْنَهُمْ فَلَا إِثْمَ عَلَيْهِ»
٦٩ (١٨٢-١٨٠:٢)

"Those of you who die and leave wives, (should leave) a testament for their wives bequeathing a provision for a year without expulsion. But if they go out, then there is no sin on you in what they do with themselves in fairness" (2:240)⁷⁰

«وَالَّذِينَ يَتُوفُونَ مِنْكُمْ وَيَذَرُونَ أَزْوَاجًا وَصِيَّةً لِأَزْوَاجِهِمْ مَتَاعًا إِلَى الْحَوْلِ غَيْرَ إِخْرَاجٍ فَإِنْ خَرَجْنَ فَلَا جُنَاحَ عَلَيْكُمْ فِي مَا فَعَلْنَ فِي أَنْفُسِهِنَّ مِنْ مَعْرُوفٍ»
٧٠ (٢٤٠:٢)

⁶⁹ This verse has the possibility of abrogation being abrogated by verse 11 chapter 4 (see Ibn Du'âmah, *ibid.*, p.35).

⁷⁰ This verse is related to an occasion(s) of revelation (see al-Suyûfî, *ibid.*, pp.43-44). The verse has also the possibility of abrogation being abrogated by verse 12 chapter 4 (see Ibn Du'âmah, *ibid.*, p.36).

^{٦٩} تحتمل هذه الآية إمكانية النسخ بالآية ١١ من سورة ٤ (أنظر ابن دعامة، المرجع السابق، ص ٣٥)

^{٧٠} هذه الآية يصاحبها سبب نزول (أنظر السيوطي، المرجع السابق، ص ٤٣-٤٤). كذلك تحتمل هذه الآية إمكانية النسخ بالآية ١٢ من سورة ٤ (أنظر ابن دعامة، المرجع السابق، ص ٣٦)

Bequeath and testimony

الوصية والشهادة

"O you who believe, let there be testimony between you when death comes to any one of you, at the bequeathing two men of fairness among you, or two others from another folk, if you are travelling in the land and the calamity of death befalls you. You shall let them both stay after the prayer, then they shall swear by God, if you are doubtful, 'We will not sell it for a price, even if it were a near kinsman, nor will we conceal the testimony of God, for then we would be among the sinful. But if it be found that both of them have committed a sin, then let two others take their place, from those against whom the two had sinfully testified. Then let those two swear by God: 'Our testimony is truer than their testimony; and if we transgress, then we will be among the iniquitous.' This is nearer to bearing testimony in its correct way; or they will fear that testimony will be borne after their testimony . . ." (5:106-108)

يَا أَيُّهَا الَّذِينَ ءَامَنُوا شَهَدَةٌ بَيْنَكُمْ إِنَّا حَضَرَ
أَحَدَكُمْ الْمَوْتُ حِينَ الْوَصِيَّةِ أَشْكَانَ نَوَا عَدْلٍ
مِنْكُمْ أَوْ ءَاخِرَانَ مِنْ غَيْرِكُمْ إِن أَنْتُمْ ضَرَبْتُمْ فِي
الْأَرْضِ فَأَصَابَتْكُمْ مُصِيبَةُ الْمَوْتِ تَحْسِبُونَهُمَا
مِنْ بَعْدِ الصَّلَاةِ فَيُقْسِمَانِ بِاللَّهِ إِنِ ارْتَبْتُمْ
لَا نَشْتَرِي بِهِ ثَمَنًا وَلَوْ كَانَ ذَا قُرْبَىٰ وَلَا نَكْتُمُ
شَهَدَةَ اللَّهِ إِنَّا إِنَّا لَمِنَ الْآثِمِينَ، فَإِنْ عَثَرَ عَلَىٰ
أَنَّهُمَا اسْتَحَقَّا إِثْمًا فَءَاخِرَانِ يَكُونَانِ مَقَامَهُمَا
مِنَ الَّذِينَ اسْتَحَقَّ عَلَيْهِمُ الْأُولَىٰ فَيُقْسِمَانِ
بِاللَّهِ لَشَهَدَتُنَا أَحَقُّ مِنْ شَهَدَتِهِمَا وَمَا
أَعْتَدْنَا إِنَّا إِنَّا لَمِنَ الظَّالِمِينَ، نَلِكِ ادْنَىٰ أَنْ
يَأْتُوا بِالشَّهَدَةِ عَلَىٰ وَجْهٍ أَوْ يَخَافُوا أَنْ تَرُدَّ
أَيْمَنُ بَعْدَ أَيْمَنِهِمْ» (١٠٨-١٠٦:٥)

Inheritance

الميراث

Inheritance and children

الميراث والأبناء

"God commands you, concerning your children to the male the like of the portion of two females. And if there only be women above two, then they shall have two thirds of what he leaves; but if she is only one, then she shall have one half . . ." (4:11)⁷¹

يُوصِيكُمُ اللَّهُ فِي أَوْلَادِكُمْ لِلذَّكَرِ مِثْلُ حَظِّ
الْأُنثَىٰ فَإِن كُنَّ نِسَاءً فَوْقَ اثْنَتَيْنِ فَلَهُنَّ ثُلُثَا مَا
تَرَكَ وَإِن كَانَتْ وَاحِدَةً فَلَهَا النِّصْفُ»
٧١ (١١:٤)

⁷¹ This verse is related to an occasion(s) of revelation (see al-Suyûfî, *ibid.*, pp.68-69).

٧١ هذه الآية يصاحبها سبب نزول (أنظر السيوطي، المرجع السابق، ص ٦٨-٦٩).

Inheritance and parents

" and to each one of his parents one sixth of what he leaves if he has a son. But if he has no children and his parents inherit him, then one third to his mother. But if he has brothers, then a sixth to his mother, after any will he may bequeath, or a debt" (4:11)⁷²

الميراث والابوان

« وَلِأَبَوَيْهِ لِكُلِّ وَاحِدٍ مِّنْهُمَا السُّدُسُ مِمَّا تَرَكَ إِنْ كَانَ لَهُ وَلَدٌ فَإِنْ لَمْ يَكُنْ لَهُ وَلَدٌ وَوَرِثَهُ أَبُوَاهُ فَلِلْأُمِّهِ الثُّلُثُ فَإِنْ كَانَ لَهُ إِخْوَةٌ فَلِلْأُمِّهِ السُّدُسُ مِنْ بَعْدِ وَصِيَّةٍ يُوصِي بِهَا أَوْ دَيْنٍ » (١١:٤) ٧٢

Inheritance and husband

"And you shall have half of what your wives leave, if they have no children. But if they have children, you shall only have a fourth of what they leave after a will they may bequeath or a debt" (4:12)

الميراث والزوج

« وَلَكُمْ نِصْفُ مَا تَرَكَ أَزْوَاجُكُمْ إِنْ لَمْ يَكُنْ لَهُنَّ وَلَدٌ فَإِنْ كَانَ لَهُنَّ وَلَدٌ فَلَكُمْ الرُّبْعُ مِمَّا تَرَكَنَّ مِنْ بَعْدِ وَصِيَّةٍ يُوصِينَ بِهَا أَوْ دَيْنٍ » (١٢:٤)

Inheritance and wife

" And for them a fourth of what you leave, if you have no children. But if you have children then they shall have an eighth of what you leave after a will you may bequeath or debt" (4:12)

الميراث والزوجة

« وَلَهُنَّ الرُّبْعُ مِمَّا تَرَكَتُمْ إِنْ لَمْ يَكُنْ لَكُمْ وَلَدٌ فَإِنْ كَانَ لَكُمْ وَلَدٌ فَلَهُنَّ الثُّمُنُ مِمَّا تَرَكَتُمْ مِنْ بَعْدِ وَصِيَّةٍ تُوصُونَ بِهَا أَوْ دَيْنٍ » (١٢:٤)

Inheritance and brothers/sisters

" And if a man or a woman have no heir, but have a uterine brother or sister, then to each of the two is the sixth. But if they are more than that, then they shall be equal shares in one third after a will that may be bequeathed therewith, or a debt not injurious" (4:12)

الميراث والأخوة / الأخوات

« وَإِنْ كَانَ رَجُلٌ يُورَثُ كَلِئَلَةً أَوْ امْرَأَةً وَوَلَةً أَخٍ أَوْ أُخْتٍ فَلِكُلِّ وَاحِدٍ مِّنْهُمَا السُّدُسُ فَإِنْ كَانُوا أَكْثَرَ مِنْ ذَلِكَ فَهُمْ شُرَكَاءُ فِي الثُّلُثِ مِنْ بَعْدِ وَصِيَّةٍ يُوصَى بِهَا أَوْ دَيْنٍ غَيْرٍ مُّضَارٍ » (١٢:٤)

⁷² This verse is related to an occasion(s) of revelation (see al-Suyûfî, *ibid.*, pp.68-69).

٧٢ هذه الآية يصاحبها سبب نزول (انظر السيوطي، المرجع السابق، ص ٦٨-٦٩).

"They ask your verdict, say 'God gives you His verdict concerning the heir. If a man dies childless, but he has a sister, she receives a half of what he leaves, and he shall inherit her if she has no children. But if there be two sisters, then they shall have two thirds of what he leaves. And if they are brothers and sisters, then to the male the share of two females" (4:176)⁷³

«يَسْتَفْتُونَكَ قُلِ اللَّهُ يُفْتِيكُمْ فِي الْكَلَلَةِ إِنِ امْرُؤٌ
مَلَكَ لَيْسَ لَهُ وَلَدٌ وَلَهُ أُخْتٌ فَلَهَا نِصْفُ مَا تَرَكَ
وَهُوَ يَرِثُهَا إِنْ لَمْ يَكُنْ لَهَا وَلَدٌ فَإِنْ كَانَتَا
أُثْنَيْنِ فَلَهُمَا الشُّكْلَانِ مِمَّا تَرَكَ وَإِنْ كَانُوا إِخْوَةً
رِجَالًا وَنِسَاءً فَلِلذَّكَرِ مِثْلُ حَظِّ الْأُنثِيَيْنِ»
(١٧٦:٤) ٧٣

Inheritance and kinsmen

"And when the kinsmen, and the orphans and the indigent attend the division then provide them some of it, and speak to them with kindly words." (4:8)⁷⁴

الميراث والأقارب

«وَإِنَّا حَضَرَ الْقِسْمَةَ أُولُوا الْقُرْبَىٰ وَالْيَتَامَىٰ
وَالْمَسْكِينُ فَأَرْزُقُوهُمْ مِنْهُ وَقُولُوا لَهُمْ قَوْلًا
مَعْرُوفًا» (٨:٤) ٧٤

⁷³ This verse includes a difference of opinion in the reciting of the word *wa huwa* (and he) based on the reading of Qâlûn. (see 'Umar and Makram, *ibid.*, vol.II, p.185). The verse is also related to an occasion(s) of revelation (see al-Suyûtî, *ibid.*, pp.95-96).

⁷⁴ This verse has the possibility of abrogation being abrogated by verse 11 chapter 4 (see Ibn Du'âmah, *ibid.*, pp.38-39).

^{٧٣} يرد في هذه الآية إختلاف في القراءة للفظ وهو وفقا لقراءة قالون (أنظر عمر ومكرم، المرجع السابق، ص ٢، ص ١٨٥). كما يصاحب هذه الآية سبب نزول (أنظر السيوطي، المرجع السابق، ص ٩٥-٩٦).

^{٧٤} تحتمل هذه الآية إمكانية النسخ بالآية ١١ من سورة ٤ (أنظر ابن دعامة، المرجع السابق، ص ٣٨-٣٩)

CONCLUSION

Islamic Information Science has neither a past nor a present. It is the emerging science of the future. What was misrepresented as Islamic Information Science by Muslim scholars was a Muslim information science if not a Western Information Science in Muslim dress. The difference between the two is that the former should be conceived, structured and developed on the basis of the pure mental effort of Muslim scholars, while the latter is simply the adoption, by Muslims, of the methods of Information Science as they have been moulded by the Western perception, with no attempt to elaborate or evaluate their usefulness or their weaknesses for the purposes of Islam.

Unfortunately, there is no consensus among Muslim scholars on the structure of Islamic Information Science. Yet the fundamental philosophical base still rests on the reclassification of Knowledge that assumes that Islam has its own working philosophy and that this has a complete and conclusive integration of its own. However, this task and the challenge it presents still remain unfulfilled. The task of the reclassifying of Knowledge requires immense intellectual capacity, not only from experts in the field of library science, but from philosophers, jurists, historians, linguists and scientists. All need to have deep insight into the faith of Islam - its culture, legacy and civilization. It is only through the combination of these two qualities that a new concrete classification of Knowledge can be produced.

Indeed, some ideas on the lines discussed above have already been explored in what in its general form is known as the "Islamization of Knowledge". The late al-Fârûqî of the International Institute of Islamic Thought - Washington¹ made a pioneering effort in this regard and explained the Islamization of Knowledge in terms of (i) the developing a comprehensive critique of Western theoretical

¹ International Institute of Islamic Thought (1987), *al-wajîz fi Islâmiyyat al-ma'rifah*, Herndon, Virginia. [Arabic Text]

orientations and methodological tools, (ii) the formulating of an ideal-typical model of Islamic society from the basic sources of Qur'an and Hadith, and (iii) the evolution and application of relevant, local and ideologically suitable concepts, theories and methods in the study of social reality prevailing in Muslim societies. This concept is bi-dimensional: it is theoretical because it attempts to develop a typical model of an ideal Islamic society in the contemporary world, and it is empirical because it intends to introduce the basic elements of realism to the study of present day Muslim societies.

The scheme devised and outlined by al-Fârûqî is a general scheme which could be applied to any discipline; however, two points remain to be clarified if the actual scheme is to be put into practice. First, every field has to be analyzed and investigated by the experts who must train their Islamic understanding to interpret Islam in the light of modern science as well as the basic Islamic norms and principles. Secondly, the task of analysis and investigation must be undertaken in the domain of institutional projects, and not as an individual academic exercise. This is to ensure that it operates within a coherent scheme and as part of a conscious collective mental effort.

Regarding the discipline of Information Science, in contrast to the first point, the specialists in the field of Information Science who have developed their own Islamic personality are few in number and most if not all of them are still wasting their time and energy trying to adapt their Islamic situation and to modify the tools of the Western system. Unfortunately, these adaptations have not only failed to tackle the real problem, but also distort and disfigure the serene harmony of Islamic values. Moreover, in contrast to the second point, because of the individualism of their thinking their studies have been poor in quality, lacking in originality, and repetitive.

However, there is now a new ray of light, though it is still in an individual garb, which seeks to tackle the problem of Islamicity through pure intellectual Muslim effort. Unfortunately, these initiatives have not been successfully approached. For instance, Sabazwari's suggestion of a Universal Islamic Classification and Anwar's call for the establishment of a World Bibliographic Centre are doomed to failure unless these scholars have first devoted their perception, effort and time to establishing an Islamic methodology for classifying Knowledge.

For these reasons the author of this study believes that to tackle the problem of classification of Knowledge, in order to establish a universal Islamic classification scheme, and to initiate a sort of global bibliographical control of Islamic literature, both conceptually and physically, the first step should be to establish an analytical retrieval system of both the Qur'anic text and the Hadith collection. In addition to the points mentioned above, this will help in saving time and effort for those who seek the Qur'an and Hadith subjects; it will also provide a creative tool for authors who have no clear ideas regarding the Qur'an and the Hadith subjects. Furthermore, the final production of these indexes will form the actual classification of Knowledge as presented by the Qur'an and the Hadith. Later on, through a conceptual analysis of these indexes and the organization of the literature and writings on the Qur'an and Hadith, the final production of a classification scheme on the Qur'an and Hadith will be achieved. Through this classification scheme and other self-standing schemes on Jurisprudence, Islamic history, Islamic philosophy, etc. the general Islamic classification scheme will be attained. Again to achieve the Universal Islamic classification scheme literature and writing on Islam in all languages will need to be taken into consideration. For national purposes this scheme could also be of benefit to all Muslim countries, which need to initiate their own national classification scheme. For instance, Arabic, Urdu, Persian and Turkish

traditions and history could be added to this scheme on a national base, with their rules for transliteration, alphabetization, and any other rules for cataloguing and lists of subject headings.

It is therefore suggested that a complementary accompaniment to this study would be to deal with the problems relating to Hadith by analyzing the problems relating to the initiation of a bibliographical classification scheme of the Qur'an and Hadith. Also parallel to the present study is an analytical approach to the problems related to Hadith, in order to establish a Hadith retrieval system; this too has to be discussed. The problems could be identified with those related to the Qur'an, which have been discussed in this study. In particular three core problems which are implicit in the question of establishing a Qur'anic retrieval system.

The first core problem is difference in interpretation. This implies that differences of opinion in interpretation are due not so much to the lack of understanding about the methodology of interpretation, but to the lack of basic human understanding about Qur'anic style of presentation. This is mainly seen in ambiguous expressions, co-referential of pronouns, various dialects of Arab tribes, continuous/discontinuous statements in narrative stories and various readings. The differences of opinion among commentators appear also to be due to the difficulty of tracing back the Qur'anic statement to its actual context in relation to its time of revelation. This appears in specific and general statements, occasions of revelations, abrogations, and stories from Judaica. Finally, the various differences in interpretation are thought to be due to different schools of thought that shape the mind and give rise to abstract meanings. This is mainly seen in the Shi'ite, Mu'tazilite, Sufi, and Kharijite ways of interpretation.

However, it is suggested that the above problems could be resolved as follows: for all verses that show differences in linguistic interpretation, all the opinions must be considered under their immediate headings. This means utilizing only the reading prevailing in the Muslim world, that is Hafs, while considering the differences shown in other readings in a footnote. The occasions of revelations and the principle of abrogation should be consulted only for clarification and an indication has to be provided in the footnote. As to Judaica, the principle is to avoid them as much as possible, unless they are supported by authentic Hadiths. However, regarding the various schools of thought the aim is to choose and consider individual representatives of these schools within the historical, theological and linguistic framework that has been accepted by the majority of Muslim scholars.

The second core problem that is considered in this study is the proper choice of appropriate criteria for selection and of a well-defined set of rules by which the individual words or sentences may lead to a successful presentation of the selected Qur'anic verses. Specifically, the criteria adopted should involve correct recognition of homographs, general awareness of the synonyms, the right selection of word form, effective methods of organization of letters, words and headings, and finally, pleasant display of the indexing scheme.

Initially, the fundamental problem of homographs is that a great number of words in the Qur'an have more than one meaning of interpretation. Also the absence of the vowel signs in some printed material can result in a homographic case if the Qur'anic words are isolated from the text. Technically, the existence of homographs in the retrieval system can result in the user not understanding the meaning behind the word in isolation in the alphabetic index. Moreover, synonyms exist in the Qur'an in several forms viz; true synonyms and quasi-synonyms. The former include semantic equivalences, derived nouns and irregular plurals. While the latter indicate those words that have slight

difference in meaning, even though they are used without distinction. Practically, the existence of synonyms in the retrieval system results in scattering the synonymous words through the alphabet and hence this affects the performance of the retrieval system. Also the lack of criteria for choosing one of the synonymous words rather than another in the alphabet can hardly match the flexibility of the user's aim.

Similar to synonyms, but in a different form, the existence of different numerical forms of terms viz; singular, dual and plural in the Qur'an leads to the same problems caused by the lack of criteria of selection for the forms of the terms. The organization of the terms in a sequence order as a basic approach to match the user's request has two possible forms of organization as far as the letters are concerned: the root method and the alphabetic method. The root method maintains an internal alphabetic order, while the alphabetic method has two ways of sequencing the letters: vertically, following the difference that has been used in the Moroccan countries and the rest of Arab countries, and horizontally, following the difference between letter-by-letter sequences and word-by-word sequences. The latter are closely connected with the form of the headings, whether they are single-word or multi-word headings. Finally, the way the terms are displayed in the alphabetic display is tested as a conventional method for the retrieval system by a comparison of the KWIC and KWOC displays. Similarly the efficiency of facet, hierarchical and graphic displays is tested as a complement to the alphabetic one.

The solution adopted in this study for homographs is to provide vowel signs for all words in order to eliminate artificial homographs; the natural homographs are qualified by words in brackets to clarify the meaning. However, the solution for synonyms is to provide all shades of meanings in the alphabet index and to choose a preferred one in the classified index. The criterion of selection is to adopt the most frequent occurrence in the Qur'an for the irregular plurals;

distinction should be made between those which indicate concepts and those which indicate numbers. As to the former, both should be provided due to their differences, while for the latter the most frequent occurrence is to be chosen. For different numerical forms of terms, the suggestion is to use those which exist in the Qur'an in single form; as to terms which exist in more than one form, the criterion is to choose the plural form rather than dual or singular and to use the criterion of synonyms for irregular plurals. For the organization of terms, the alphabetic method is recommended rather than the root method; the sequences most common in the Arab countries are adopted, and the word-by-word sequence is preferred to avoid the scattering of the headings.

The third core problem is the capability of the machine to read the text and to determine the meaning of the messages, and the shades of meanings that are expressed in the Qur'anic style and its way of argumentation. At the most elementary level the problem is to examine the capability of the machine to process Arabic words, together with their vowels, roots and patterns. The major problem of getting computers to communicate with humans, using natural language, is machine analysis at the morphological level. The assumption is that if dictionaries are attached to the memory of the computer, provided they are large enough and the lexicography good enough, words can be matched easily and this enables the user to retrieve the text. Unfortunately, the internal change in Arabic words, and the variant forms of roots and patterns render the results far from encouraging. Alternatively, attempts have been made to use syntactical analysis on simple Qur'anic verses. Chomsky's theories of "transformational grammar" and "phrase structure grammar" were also tested. However, the major problem of these theories in dealing with Qur'anic language is that placing an input string of the verse, parsing it into an undefined form and then generating it from this undefined form, results sometimes (as long as semantical analysis is not considered) in generating meaningless verses.

Gradually, semantics is seen to be a necessary perspective in Qur'anic language analysis. The test favoured by Katz and Fodor "the theory of semantics" was later developed by Fillmore in "the case for case" theory. The major preoccupation of these theories has been the question of how not to generate "starred" verses. That is, to establish as a goal that the grammars should not generate verses that are either meaningless or ungrammatical. Tasks like these tend to yield results of little use for machine processing the Qur'anic text. The need for a semantic theory that is to prove usable by computers is neither to mark input verses as unacceptable nor to preserve the generation of such verses.

The conclusion therefore is that what might be labelled a program of computational semantics is the establishment of a step by step procedure that assigns a meaning to input verses and provides for the creation of meaningful ideas and their encoding into the verses of the Qur'an. The major issue in resolving these problems is the creation of a meaning representation that yields, in a prescribed fashion, the concepts underlying a verse: that is, by the use of the "frame models" of Minsky. However, the major disadvantages of these models, in their use for Qur'anic analysis, are the determination of the right frames, the distinction of homographs and the realization of synonyms.

For internal indexing, that is, the subject indexing of the contents for the purpose of assigning labels to the Qur'anic verses represented, three major experiments in automatic indexing were tested: Luhn, Baxendale, and Oswald. All three experiments are based on the idea that by eliminating the common words from the text, the remaining words are likely to describe the text and the highest frequency words are the best representatives to indicate the text. Unfortunately, again the synonyms and the homographs create difficulties, and moreover the existence of the pronouns presents hidden meanings created from the occurrence of the words that happen to be in different forms.

Our view therefore is that deep knowledge cannot be understood by contemporary automatic systems, at least for the Qur'an which functions in a complex world. As a result of this limitation, the other suggested alternative method is to use the computer as a predesigned database. This means that the database and its interaction with the user must be performed manually before being searched. In addition, all the problems that would become evident in the manual system would be solved. For the remaining technical problems of searching viz; exact matching, truncation, root reduction, and Boolean operators and the lack of agreement of the distribution of Arabic characters on the keyboards, a menu selection is suggested.

The point which has finally to be discussed is that of the designing process itself. Indeed, designing a system to satisfy unspecified needs may sound like an impossible task, yet it can be done by achieving appropriate specialization. All systems, even the largest libraries, are designed with conscious limitations in scope, that is, some degree of knowledge of what the system should have, and who are the intended users. This is the only rational approach to design.

Having devoted this work to satisfy the demands of modern sciences, in facing the intellectual challenges of modernity, Muslim thinkers clash head-on with secular modernity; in essence the conflict centres on whether or not modern sciences have to fit the Qur'anic verses. In other words, Muslim thinkers believe that the way the unity of the human experience is dividing Knowledge into social sciences and natural sciences and the manner in which it is further segmented into various disciplines, is not valid from the points of view of the epistemological system of the Qur'anic structure. Despite the claim that the Qur'an is a complete way of life and valid for every time and place, most Muslim thinkers believe in their heart of hearts that the Qur'anic option to Knowledge is valid only for the moral sphere. In relation to the scientific

world, notwithstanding all the furore about Qur'anic studies, Muslim thinkers find themselves in a complete vacuum. There is, of course, an inkling in some Muslim writings which try to relate to fields such as astronomy, geology and medicine, but there is no trace of Qur'anic approach to studying the scientific world. Indeed, there is nothing wrong in attempting to match scientific facts with the Qur'anic verses. After all, if scientific facts cannot be fitted to the Qur'an, then it would be much more appropriate not to match the Qur'anic verses with the creation of the human mind and the subjectivity of human reason that exists in social sciences. As a matter of fact, both the natural sciences and the social sciences can be fitted to the Qur'anic verses, but only if this is carried out according to a proper Qur'anic methodology to enhance the values and the norms of the Qur'anic message and to appropriate it to the human sphere, whether scientific or social. We must bear in mind that the Qur'an is an unaltered revelation from God and that no contradiction should emerge unless human perception is distorted. The frequency with which the organs of sense perception have been echoed in various chapters of the Qur'an is a clear indication of its role in acquiring Knowledge from a world-view perspective, but only if we remember that this is the product of the All-Knowing.

Given this endeavour and the poverty of the Muslim approach in this regard, the task of establishing a Qur'anic retrieval system can no longer be conceived without the contribution of an Islamic perception, which adopts a Qur'anic approach to study scientific facts and social activities. This in itself could be a great challenge for compilers who are in the process of establishing a Qur'anic retrieval system and who without the help of the creative energies of Muslim thinkers will not fulfil their duty properly.

BIBLIOGRAPHY

- Abbott, N. (1939), *The Rise of the North Arabic Script and its Kur'anic Development*, Chicago: University of Chicago Press.
- 'Abd al-Bâqî, Muḥammad Fû'âd (1984), *al-mu'jam al-mufahras li-alfâz al-Qur'ân al-karîm*, Istanbul: al-Maktabah al-Islâmiyyah. [Arabic text]
- (1978), *miḥtâḥ kunûz al-sunnah*, Lahore: Idârat Turjmân al-Sunnah. [Arabic text]
- (1969), *tafṣîl âyât al-Qur'ân al-ḥakîm wa al-mustadrak*, Beirut: Dâr al-Kitâb al-'Arabî. [Arabic text]
- (n.d.), *mu'jam gharîb al-Qurân mustakhrajan min ṣaḥîḥ al-Bukhârî*, Beirut: Dâr al-Ma'rifah, 2nd ed. [Arabic text]
- 'Abd al-Hâdî, Muḥammad Fathî (1989), *al-makâniz ka-adawât lil-takshîf wa istirjâ' al-ma'lûmât*, Cairo: Maktabat Gharîb. [Arabic text]
- (1984), *muqadimah fi 'ilm al-ma'lûmât*, Cairo: Maktabat Gharîb. [Arabic text]
- (1981), *al-fahrasah al-mawḍû'iyah: dirâsah fi rû'ûs al-mawḍû'ât al-'Arabiyyah*, Jeddah: Dâr al-Shurûq, 2nd ed. [Arabic text]
- 'Abduh, Muḥammad (1983), *al-Islâm bayna al-'ilm wa al-madaniyyah*, Cairo: Dâr al-Hilâl, kitab al-hilâl, no. 385. [Arabic text]
- (1904), *tafsîr juz' 'amma*, Cairo: al-Maṭba'ah al-Amîriyyah. [Arabic text]
- Abdus Sattar, Muhammad (1978), *wujuh al-Qur'ân: A Branch of Tafsir Literature*, *Islamic Studies*, 17(2), pp.137-152.
- Abû Dâwûd, Sulaymân ibn al-Ash'ath al-Sâgistânî (1953), *sunnan Abû Dâwûd*, Cairo: Muṣṭafâ al-Bâbî al-Ḥalabî. [Arabic text, reproduced]
- Abû al-Nûr, 'Abd al-Wahâb (1973), *dirâsah fi manhaj i'dâd anẓimat al-taṣnîf ma' taḥbîqih fi i'dâd nizâm taṣnîf lil-dîn al-Islâmî*, Cairo: Dâr al-Thaqâfah lil-Ṭibâ'ah wa al-Naṣhr. [Arabic text]
- Abû 'Ubaydah, Mu'ammâr ibn al-Muthannâ (1954), *majâz al-Qur'ân*, Cairo: Maṭba'at al-Khûlî. [Arabic text, reproduced]

- Afzalur Rahman (1983), *Subject Index of Qur'an*, Lahore: Islamic Publication Limited.
- (1981), *Qur'anic Sciences*, London: The Muslim Schools Trust.
- Aitchison, J. (1972), *Welfare of the Elderly: a faceted classification and thesaurus*, Vol.1, classified schedules, London: Aslib.
- and Gilchrist, A. (1987), *Thesaurus Construction*, Aslib: The Association for Information Management, 2nd ed.
- Al-'Alamiyyah (1988), *al-Qur'ân al-Karim: An Electronic Library of Qur'an*, Kuwait.
- Ali, Nabîl (1989), *al-fahm al-utumâtî lil-'Arabiyyah al-maktûbah ghayr al-mashkûlah*, Proceedings of Second Conference on Arabic Computational Linguistics, Kuwait, pp.462-470. [Arabic text]
- al-Alûsî, Sayyid Maḥmûd (1964), *rûḥ al-ma'ânî*, Cairo: Mu'assasat al-Ḥalabî, 9 vols. [Arabic text, reproduced]
- Aman, M. M. (1968), *Analysis of Terminology: Form and Structure of Subject Headings in Arabic Literature and Formulation of Rules for Arabic Subject Headings*, Washington, D.C.: University of Pittsburgh, Ph.D. thesis.
- American Institute of Chemical Engineers (1961), *Chemical Engineering Thesaurus*, New York: American Institute of Chemical Engineers.
- American Library Association Committee (1895), *List of Subject Headings for Use in Dictionary Catalogs* (1895), Boston, Mass.: Library Bureau.
- American National Standards Institute (1980), *Guidelines for Thesaurus Structure, Construction and Use, ANSI Z39.19*, New York: American National Standards Institute, Inc.
- American Society for Information Science (n.d.), *Brochure*, Washington D.C.: The Society.
- al-Amidî, Sayf al-Dîn Abî al-Ḥasan (1985), *al-iḥkâm fî uṣûl al-aḥkâm*, edited by al-'Ajûz, Ibrâhîm, Beirut: Dâr al-Kutub al-'Ilmiyyah, 4 vols. [Arabic text, reproduced]
- Anees, M. A. (1987), *Information Technology and Global Control System for Islamic Literature*, MAAS Journal of Islamic Science, 3(1), pp.57-68.
- (1985), *Islamic Studies-Publish and Perish? Book and Periodical Citations on tafsir al-Qur'ân in Western Languages*; Muslim World Book Review, 5(2), pp.55-68.

- (1983), *Utilization of Computer Technology in Islamic Studies*, Search: Journal of Arab and Islamic Studies, 4(1-2), pp.73-76.
- and Athar, A. N. (1986), *Guide to Sira and Hadith Literature in Western Languages*, London: Mansell Publishing Limited.
- Anwar, M. A. (1985), *Information Services in Muslim Countries: An Annotated Bibliography of Expert studies and Reports on Library, Information and Archive Services*, London: Mansell Publishing Limited.
- (1983), *Towards a Universal Bibliographic System for Islamic Literature*, International Library Review, 15(3), pp.257-261.
- Applied Microsystem Technology (1987), *Salsabeel: An Electronic Index of Qur'an*, London.
- Armitage, J. E. and Lynch, M. F. (1967), *Articulation in the Generation of Subject Indexes by Computer*, Journal of Chemical Documentation, 7, pp.170-178.
- Artandi, S. (1973), *Information Concepts and their Utility*, Journal of the American Society of Information Science, 24, pp.242-245.
- al-Asâdabâdî, 'Abd al-Jabbâr ibn Aḥmad (1969), *mutshâbih al-Qur'ân*, edited by Zarzûr, 'Adnân, Cairo: Dâr al-Turâth, 2 vols. [Arabic text, reproduced]
- al-Aşfahânî, al-Râghib Abû al-Qâsim Ḥusayn ibn Muḥammad (n.d.), *mu'jam mufradât alfâz al-Qur'ân*, edited by al-Mar'shlî, Nadîm., Beirut: Dâr al-Kâtib al-'Arabî. [Arabic text, reproduced]
- al-Ashqar, Muḥammad Sulaymân (1972), *al-fahrasah al-hijâ' iyyah wa al-tartîb al-mu'jamî*, Kuwait: Dâr al-Buḥûth al-'Ilmiyyah. [Arabic text]
- al-Ashqar, 'Umar Sulaymân (1986), *'alam al-jinn wa al-shayâṣîn*, Cairo: Dâr al-Kutub al-Salafiyyah. [Arabic text]
- 'Aṭiyyah, Muḥieddien (1988), *al-kashshâf al-iqtisâdî lil-aḥâdîth al-nabawiyyah*, Kuwait: Dâr al-Buḥûth al-'Ilmiyyah. [Arabic text]
- (1982), *da'wah ilâ takshîf al-Qur'ân al-karîm*, in: *Majalat al-Muslim al-Mu'âşir*, compiled by 'Aṭiyyah, Jamâl al-Dîn, Kuwait, 33, pp.147-223. [Arabic text]
- (n.d.), *al-kashshâf al-iqtisâdî li-âyat al-Qur'ân al-karîm*, unpublished work. [Arabic text]
- Ayoub, Mahmud (1984), *The Qur'ân and its Interpreters*, Albany, N.Y.: State University of New York Press.

- Ayûb, Hasan (1979), *tabṣīṭ al-'aqâ'id al-Islâmiyyah*, Kuwait: Dâr al-Buhûth al-'Ilmiyyah. [Arabic text]
- al-Azharî, Abû Mansûr Muḥammad (1964-75), *tahdhîb al-lughah*, Harûn, 'Abd al-Salâm (initiator), Cairo: al-Dâr al-Miṣriyyah lil-Ta'lîf wa al-Tarjamah. [Arabic text, reproduced]
- al-Baghawî, Ḥusayn ibn Mas'ûd (1983), *ma'âlim al-tanzîl*, edited by al-'Ak, khâlid 'Abd al-Raḥmân and Suwâr, Mrawan, Beirut: Dâr al-Ma'rifah, 4 vols. [Arabic text, reproduced]
- Bailey, R. W. (1982), *Human Performance Engineering: A Guide for System Designers*, Englewood Cliffs., NJ.: Prentice-Hall, Inc.
- al-Bannâ, Hasan (1979), *maqâṣid al-Qur'ân al-karîm: muqadimah fi al-tafsîr*, Cairo: Dâr al-Shihâb. [Arabic text]
- Barakât, Muḥammad Fâris (1985), *al-jâmi' li-mawâḍi' âyât al-Qur'ân al-karîm*, Beirut: Dâr Qutaybah. [Arabic text]
- (1939), *al-murshid ilâ âyât al-Qur'ân al-karîm*, Damascus: al-Maṭba'ah al-Hâshimiyyah. [Arabic text]
- Barhydt, G. C. (1967), *The Effectiveness of Non-User Relevance Assessments*, *Journal of Documentation*, 23(2), pp.146-49.
- , Schmidt, C. T. and Chang, K. T. (1968), *Information Retrieval Thesaurus of Education Terms*, Cleveland, Ohio: Case Western Reserve University.
- Bathurst, R. D. (1971), *Automatic Alphabetization of Arabic Words: A Problem of Graphic Morphology and Combinatorial Logic*, in: *The Computer in Literary and Linguistic research*, edited by Wisbey, R. A., Cambridge University Press, pp.185-190.
- Baxendale, P. B. (1958), *Machine-Made Index for Technical Literature-An Experiment*, *IBM Journal Res. Dev.* 2, 4, pp.354-361.
- Beck, C., Dym, E. D. and McKechnie, J. T. comp.(1975), *Political Science Thesaurus*, Washington, D.C.: American Political Science Association.
- Belkin, N. J. (1978), *Information Concepts for Information Science*, *Journal of Documentation*, 34, pp.55-85.
- Bernier, C. L. (1957), *II-Correlative Trope Indexes; III- Semantic Relations Among Semantemes*, *American Documentation*, 8, pp.47-50, 211-20.

- Billingsley, P. A. (1982), *Navigation Through Hierarchical Menu Structures: Does It Help to Have a Map?*, Proceedings of the Human Factor Society-26th Annual Meeting, Santa Monica, pp.103-107.
- Binark, Ismet and Eren, Halit comp. (1986), *World Bibliography of Translations of the Meanings of the Qur'an: Printed Translations 1515-1980*, Istanbul: Research Centre for Islamic History, Art and Culture.
- al-Bindâq, Muḥammad Ṣâlîḥ (1981), *hidâyat al-raḥmân li-alfâz wa âyât al-Qur'ân*, Beirut: Dâr al-Âfâq al-Jadîdah. [Arabic text]
- Bint al-Shâṭi', 'Â'ishah 'Abd al-Raḥmân (1969), *al-tafsîr al-bayânî lil-Qur'ân al-karîm*, Cairo: Dâr al-Ma'ârif, 2 vols. [Arabic text]
- (1964), *The Problem of Synonyms in the Light of Qur'an*, Proceedings of the 26th International Congress of Orientalists, New Delhi, January, pp.185-186.
- Bly, S. A. and Rosenberg, J. K. (1986), *A Comparison of Tiled and Overlapping Windows*, Proceedings CHI '86 Human Factors in Computing Systems, pp.101-105.
- Borko, H. (1978), *Indexing Concepts and Methods*, New York: Academic Press.
- Branes, R. et al (1974), *The Nature of Information*, in: *Information Science: Search for Identity*, edited by Debons, A., New York: Marcel Dekker, Inc., pp.371-378.
- British Standards Institution (1979), *Guidelines for the Establishment and Development of Monolingual Thesauri*, BS 5723, London: British Standard.
- Brockelmann, C. (1898-1902), *Geschichte der Arabischen Literatur*, Berlin, Supplementbände I-III, Leiden 1937-1942, 2.den Supplementbände angepasste Affl., Leiden 1943, 1949.
- Brookes, B. C. (1980), *The Foundations of Information Science, Part I: Philosophical Aspects*, *Journal of Information Science*, 2, pp.125-133.
- Bucaille, M. (1982), *The Bible, the Qur'an and Science*, Paris: Seghers.
- al-Bukhârî, Abû 'Abd Allah Muḥammad ibn Ismâ'il (n.d.), *ṣaḥîḥ al-Bukhârî*, Istanbul: al-Maktabah: al-Islâmiyyah, 8 vols. [Arabic text, reproduced]
- Bury, K. F., Boyle, J. M., Evey, R. J., and Neal, A. S. (1982), *Windowing Versus Scrolling on a Visual Display Terminal*, *Human Factors*, 24, pp.385-394.

- Campy, L. H. (1972), *Generating and Printing Indexes by Computers*, London: ASLIB Occasional Paper II.
- Carter, R. L. (1982), *Visual Search with Color*, *Journal of Experimental Psychology: Human Perception and Performance*, 8, pp.127-136.
- Chauvin, V. (1892-1922), *Bibliographie des Ouvrages Arabes au Relatifs aux Arabes Publiés dans l'Europe Chrétienne de 1810 à 1885*, Paris.
- Chomsky, N. (1965), *Aspects of the Theory of Syntax*, Cambridge, Mass.: M.I.T. Press.
- (1957), *Syntactic Structures*, The Hague, Mouton and Company.
- (1971), *Deep Structure, Surface Structure, and Semantic Interpretation*, *Semantics: An Interdisciplinary reader in Philosophy, Linguistic and Psychology*, edited by Steinberg, D. and Jakobovits, L., Cambridge: Cambridge University Press, pp.183-216.
- Clews, J. (1986), *Computer Standards and Arabic*, in: *Proceedings of the 1st Leeds Symposium*, edited by Shivtiel, A., Leeds, pp.40-52.
- Coates, E. J. (1960), *Subject Catalogues: Headings and Structure*, London: The Library Association.
- Collison, R. L. W. (1969), *Indexes and Indexing*, New York: De Graff/Benn, 3rd ed.
- Computer Technology Corporation (1987), *Al-Raed 100: An Electronic Index of Qur'an*, California.
- Cooper, W. S. (1971), *A Definition of Relevance for Information Retrieval, Information Storage and Retrieval*, 7, pp.19-37.
- Cuadra, C. A. (1964), *On the Utility of the Relevance Concept*, Santa Monica, Calif.: Technical Report SP-1595, Systems Development Corp.
- and Katter, R. V. (1967), *Opening the Black Box of 'Relevance'*, *Journal of Documentation*, December, 23(4) pp.291-303.
- Cutter, C. A. (1949), *Rules for a Dictionary Catalogue*, Washington, D.C.: Library Association, rep. 3rd ed.
- al-Damaghânî, al-Ḥusayn ibn Muḥammad (1983), *qāmûs al-Qur'ân*, edited by al-Ahl, 'Abd al-'Azîz Sayyid., Beirut: Dâr al-'Ilm lil-Malâ'yîn, 4th ed. [Arabic text, reproduced]
- al-Dânî, 'Uḥmân ibn Sa'îd (1984), *kitâb al-taysîr fî al-qirâ'ât al-sab'*, Beirut: Dâr al-Kitâb al-'Arabî. [Arabic text, reproduced]

- Dâr al-Buḥûth al-'Ilmiyyah, *majallat al-Muslim al-mu'âşir*, Kuwait, in progress, compiled by 'Aṭiyyah, Jamâl al-Dîn. [Arabic text]
- Davies, S. E., Bury, K. F, and Darnell, M. J. (1985), *An Experimental Comparison of a Windowed vs. a Non-Windowed Operating System Environment*, Proceedings of the Human Factors Society - 29th Annual Meetings, Santa Monica, CA., pp.250-254.
- Davis, C. H. and Rush, J. E. (1979), *Guide to Information Science*, Westport, Connecticut: Greenwood Press, Inc.
- Defense Documentation Center (1966), *Thesaurus of DDC Descriptors* (1966), Alexandria, Va.: Cameron Station.
- Denffer, Ahmad Von (1985), *'ulûm al-Qur'ân: An Introduction to the Sciences of the Qur'an*, Leicester, U.K.: The Islamic Foundation.
- (1982), *Hadith: A Selected and Annotated Guide to Material in the English Language*, Leicester, U.K.: The Islamic Foundation.
- (1981), *Literature on Hadith in European Languages: A Bibliography*, Leicester, U.K.: The Islamic Foundation.
- Dewey, M. (1965), *Dewey Decimal Classification and Relative Index*, Lake Placid Clud, New York: Forest Press, 17th ed.
- al-Dhahabî, Muḥammad Ḥusayyin (1967), *al-tafsîr wa al-mufasssîrûn*, Cairo: Dâr al-Kutub al-Hadithah, 2 vols. [Arabic text]
- Diepenbrock, J. S. *et al* (1971), *Thesaurus of Environmental Studies*, College Park, Md: University of Maryland, School of Librarianship.
- al-Dimashqî, Muḥammad Munîr (1984), *al-mu'jam al-mufahras li-â'yât al-Qur'ân al-karîm*, Cairo: Dâr al-Kitâb al-Islâmî. [Arabic text]
- Ditters, E. (1989), *The Role of Semantics in Automated Syntactic Analysis of Arabic Linguistic Data*, Proceedings of Second Conference on Arabic Computational Linguistics, Kuwait, pp.125-147.
- Division of Technical Information Extension (1971), *Subject Headings used by the USAEC Division of Technical Information* (1971), edited by Lanier, S. F., Oak Ridge, Tenn.: U.S. Atomic Energy Commission, 10th rev. ed.
- Doyle, L. B. (1975), *Information Retrieval and Processing*, Los Angeles: Melville(Wiley).
- (1963), *Is Relevance an Adequate Criterion for Retrieval System Evaluation?*, Proceedings of the American Documentation Institute, 2, pp.199-200.

- Dray, S. M., Ogden, W. G., and Vestewig, R. E. (1981), *Measuring Performance with a Menu Selection Human-Computer Interface*, Proceedings of the Human Factors Society - 25th Annual Meetings, Santa Monica, CA., pp.746-748.
- Eckmann, J. (1976), *Middle Turkic Glossaries of the Ryland's Interlinear Koran Translation*, edited by Schutz, E., New York: International Publications Service. [Turkic-English-Arabic-Persian text]
- Engel, F. L. (1980), *Information Selection from Visual Displays*, in: *Ergonomic Aspects of Visual Display Terminals*, edited by Grandjean, E. and Vigliani, E., London: Taylor and Francis Ltd.
- Engel, S. E. and Granada, R. E. (1975), *Guidelines for Man/Display Interfaces*, (IBM Poughkeepsie Laboratory Technical, Report # TR 00.2720), December.
- Engineering Index (1972), *Engineering Index Thesaurus*, New York: CCM Information Corporation.
- (1970), *Subject Headings for Engineering*, New York: Engineering Index, Inc.
- European Atomic Energy Community (1966), *EURATOM Thesaurus*, Brussels: Center for Information and Documentation - CID, 2nd ed, 2 vols.
- (1964), *EURATOM Thesaurus*, Brussels: Center for Information and Documentation - CID, 1st ed.
- Fagan, J. (1986), *Notes on Augmented Phrase Structure Grammars*, Ithaca, New York: Department of Computer Science, Cornell University.
- Faibisoff, S. G. and Ely, D. P. (1973), *Information and Information Needs, Information Reports and Bibliographies*, 5(5), pp.2-16.
- Fairthorne, R. A. (1968), *The Scope and Aims of the Information Sciences and Technologies*, F.I.D. Conference, 34th session. Moscow.
- Fânî, Kâmrân and Khorramshâhî, Bahâ' al-Dîn (1986), *al-fahris al-mawdû'î lil-Qur'ân al-karîm*, Tehran. [Persian-Arabic text]
- al-Fârâbî, Muḥammad ibn Muḥammad ibn Uzla' (1968), *iḥṣâ' al-'ulûm*, edited by Amîn, 'Uṭhmân, Cairo: Maktabat al-Anglû al-Miṣriyyah, 3rd ed. [Arabic text, reproduced]
- Farradan, J. (1980), *Knowledge, Information and Information Science*, *Journal of Information Science*, 2, pp.75-80.
- al-Fârûqî, I. R. (1962), *Towards a New Methodology for Qur'anic Exegesis*, *Islamic Studies*, 1(1), pp.35-52.

- al-Fayrûzabâddî, Majd al-Dîn Muḥammad (1952), *al-qâmûs al-muḥît*, Cairo: Maṭba'at Muṣṭafâ al-Ḥalabî. [Arabic text, reproduced]
- (n.d.), *baṣâ'ir dhawî al-tamyîz fî laṭâ'if al-kitâb al-'azîz*, edited by al-Najjâr, Muḥammad 'Abd al-'Azîz., Beirut: al-Maktabah al-'Ilmiyyah, 6 vols. [Arabic text, reproduced]
- Federation of Societies for Paint Technology (1968), *Thesaurus of Paint and Allied Technology*, Philadelphia: Federation of the Societies for Paint Technology.
- Fillmore, C. (1968), *A Case for Case*, in: *Universals in Linguistic Theory*, edited by Bach, E. and R. Harms, New York: Holt, Reinhart and Winston, Inc., pp.1-88.
- Flügel, G. (1812), *Concordantiac Corani Arabicus*, Leipzig. [German text]; Also published in English under the title *Concordance of the Koran*; compiled alphabetically and according to roots of words, Lahore, 1978.
- Foote, R. H. (1977), *Thesaurus of Entomology*, College Park, Md.: Entomological Society of America.
- Foskett, A. J. (1982), *The Subject Approach to Information*, London: Bingley, 4th ed.
- Foskett, D. J. (1970), *Informatics*, *Journal of Documentation*, 26(4), pp.340-369.
- Furth, H G. (1974), *The Operative and Figurative Aspect of Knowledge and Information*, in: *Information Science: Search for Identity*, edited by Debons, A., New York: Marcel Dekker, Inc., pp.21-28.
- Galitz, W. O. (1989), *Handbook of Screen Format Design*, Wellesley, Mass.: QED Information Sciences, Inc., 3rd ed.
- Gaylin, K. B. (1986), *How are Windows Used? Some Notes on Creating an Empirically-Based Windowing Benchmark Task*, *Proceedings CHI'86 Human Factors in Computing Systems*, pp.96-100.
- Gazdar, G., Klein, E., Pullum, G. and Sag, I. (1985), *Generalized Phrase Structure Grammar*, Oxford: Basil Blackwell.
- Geller, D. M., Goodstein, L., Silver, M. and Sternberg, W. C. (1974), *On Being Ignored: The Effects of the Violation of Implicit Rules of Social Interaction*, *Sociometry*, 37(4), pp.541-556.
- Gerd, A. S. (1980), *Associative Relations in an Information Retrieval Thesaurus and Ways to Identify Them*, *Automatic Documentation and Mathematical Linguistics*, 14(3), pp.25-30.

- al-Ghazâlî, Abû Hâmid Muḥammad ibn Aḥmad al-Ṭûsî (1982), *iḥyâ' 'ulûm al-dîn*, Beirut: Dâr al-Ma'rifah, 4 vols. [Arabic text, reproduced]
- Gibb, H. A. R. (1960), *Encyclopaedia of Islam*, Leiden: E. J. Brill, 5 vols.
- Gifford, C., and Baumanis, G. J. (1969), *On Understanding User Choices: Textual Correlates of Relevance Judgements*, *American Documentation*, 20(1), pp.21-26.
- Gilchrist, A. (1971), *The Thesaurus in Retrieval*, London: ASLIB.
- Goffman, W. (1964), *On Relevance as a Measure*, *Information Storage and Retrieval*, 2(3), pp.201-03.
- Hâjjî Khalîfah, Muṣṭafâ ibn 'Abd Allah al-Qusṭantînî (n.d.), *kashf al-zunûn 'an asâmi al-kutub wa al-funûn*, edited by al-Mar'shî, Nadîm, Baghdad: Maktabat al-Muthannâ. [Arabic text, reproduced]
- Halsey, R. M. and Chapanis, A. (1951), *On the Number Absolutely Identifiable Spectral Hues*, *Journal of Optical Society of America*, 41, pp.1057-1058.
- Halvorsen, P.-K. (1983), *Semantics for Lexical-Functional Grammar*, *Linguistic Inquiry*, 14, pp.567-615.
- Hammond, N., Long, J., Clark, I., Barnard, P. and Marton, J. (1980), *Documenting Human-Computer Mismatch in Interactive Systems*, *Proceedings of the 9th International Symposium on Human Factors in Telecommunication*, pp.17-24.
- Ḥasan, 'Abbâs (1974), *al-naḥw al-wâfî*, Cairo: Dâr al-Ma'ârif, 4 vols. [Arabic text]
- Hayes, R. M. (1969), *Information Science in Librarianship*, *Libri*, 19(3), pp.216-236.
- Heaps, H. S. (1978) *Information Retrieval: Computational and Theoretical Aspects*, New York: Academic Press.
- Hillman, D. J. (1964), *The Notion of Relevance (I)*, *American Documentation*, 15(1), pp.26-34.
- al-Ḥimṣî, Muḥammad Ḥasan (1984), *Qur'ân karîm: tafsîr wa bayân ma'a fahâris kâmilah lil-mawâḍi' wa al-alfâz*, Beirut: Dâr al-Rashîd. [Arabic text]
- Hulme, E. W. (1911), *Principles of Book Classification*, *Library Association Records*, 13, pp.446-447.
- Ḥusayn, al-Sâyiḥ 'Aliyy (1986), *sabîl al-hudâ*, Trablîs: Dâr Iqra'. [Arabic text]

- Ibn 'Abd al-Salâm, al-'Izz (1982), *fawâ'id fî mushkil al-Qur'ân*, edited by 'Aliyy, Sayyid Ridwân, Jiddah: Dâr al-Shurûq, 2nd ed. [Arabic text, reproduced]
- Ibn al-Anbârî, Muḥammad ibn al-Qâsim ibn Muḥammad (1971), *kitâb idâḥ al-waqf wa al-ibtidâ' fî kitâb Allah*, Damascus: al-Maṭba'ah al-Ta'âwuniyyah, 2 vols. [Arabic text, reproduced]
- Ibn 'Arabî, Muḥyî al-Dîn (1978), *tafsîr al-Qur'ân al-karîm*, Beirut, 4 vols. [Arabic text, reproduced]
- Ibn al-Bârîzî, Hibat Allah ibn 'Abd al-Raḥîm (1988), *nâsikh al-Qur'ân al-'azîz wa mansûkhuh*, edited by al-Ḍâmin, Ḥâtim Şâlih, Beirut: Dâr al-Risâlah. [Arabic text, reproduced]
- Ibn Du'âmah, Qatâdah al-Sadûsî (1988), *al-nâsikh wa al-mansûkh fî kitâb Allah ta'âlâ*, edited by al-Ḍâmin, Ḥâtim Şâlih, Beirut: Mu'ssasat al-Risâlah. [Arabic text, reproduced]
- Ibn Ḥajar, Aḥmad ibn 'Aliyy (n.d.), *al-işâbah fî tamyîz al-şahâbah*, Beirut: Dâr al-Kutub al-'Ilmiyyah, 9 vols. [Arabic text, reproduced]
- Ibn Ḥanbal, Aḥmad (1958), *al-musnad*, edited by Şhâkir, Aḥmad Maḥmûd, Cairo: Dâr al-Ma'ârif, 20 vols. [Arabic text, reproduced]
- Ibn al-Jawzî, Abû al-Faraj 'Abd al-Raḥmân (1984), *nawâsikh al-Qur'ân*, edited by 'Aliyy, Muḥammad Aşraf, Madina: al-Jâmi'ah al-Islâmiyyah, [Arabic text, reproduced]
- Ibn al-Jazrî, Muḥammad ibn Muḥammad (1926), *al-nashr fî al-qirâ'ât al-'aşhr*, Damascus: Maṭba'at al-Tawfîq, 2 vols. [Arabic text, reproduced]
- Ibn Kathîr, al-Ḥâfiz 'Imâd al-Dîn al-Faḍl Ismâ'îl (1969), *tafsîr al-Qurân al-'azîm*, Beirut: Dâr al-Ma'rifah, 4 vols. [Arabic text, reproduced]
- Ibn Khaldûn, 'Abd al-Raḥmân Muḥammad (1981), *muqadimat Ibn Kḥaldûn*, Beirut: Dâr al-Qalam, 4th ed. [Arabic text, reproduced]
- Ibn Mâjah, Abû 'Abd Allah Muḥammad ibn Yazîd al-Qazwînî (n.d.), *sunan Ibn Mâjah*, edited by 'Abd al-Baqî, Muhammad Fû'âd, Istanbul: al-Maktabah al-'Islâmiyyah, 2 vols. [Arabic text, reproduced]
- Ibn Manzûr, Jamâl al-Dîn Muḥammad (n.d.), *lisân al-'Arab*, Cairo: Maṭba'at Bûlâq, 20 vols. [Arabic text, reproduced]
- Ibn al-Nadîm, Muḥammad ibn Işhâq (1978), *al-fihrist*, Beirut: Dâr al-Ma'rifah. [Arabic text, reproduced]
- Ibn Nâqiyâ, Abû al-Qâsim 'Abd Allah (1974), *al-jumân fî tashbîhât al-Qur'ân*, edited by al-Juwînî, Muştafâ al-Şâwî, Alexandria: Manşah'it al-Ma'ârif. [Arabic text, reproduced]

- Ibn Qutaybah, 'Abd Allah ibn Muslim (1973), *ta'wîl mushkil al-Qur'ân*, edited by Şaqr, al-Sayyid Aḥmad, Cairo: Dâr al-Turâṭh, 2nd ed. [Arabic text, reproduced]
- Ibn Sînâ, al-Ḥusayn ibn 'Aliyy al-Bakhlî (1947), *al-ishârât wa al-tanbîhât*, edited by Dunyâ, Sulaymân, Cairo: Maṭba'at al-Ḥalabî. [Arabic text, reproduced]
- Ibn Taymiyyah, Taqiyy al-Dîn ibn 'Abd al-Ḥalîm (1979), *muqadimah fî uşûl al-tafsîr*, edited by Zarzûr, 'Adnân, Beirut: Dâr al-Qur'ân al-Karîm, 3rd ed. [Arabic text, reproduced]
- Ibrâhîm, Muḥammad Ismâ'îl (1968), *mu'jam al-alfâz wa al-a'lâm al-Qur'âniyyah*, Cairo: Dâr al-Fikr al-'Arabî. [Arabic text]
- International Institute of Islamic Thought (1987), *al-wajîz fî Islâmiyyat al-ma'rifah*, Herndon, Virginia: International Institute of Islamic Thought. [Arabic text]
- International Organization for Standardization (1986), *ISO 2788 Guidelines for the Establishment and Development of Monolingual Thesauri*, Geneva: International Organization for Standardization.
- International Organization for Standardization (1986), *ISO/DIS 9036*, Geneva: International Organization for Standardization.
- Ishâq, 'Aliyy Shawâkh (1984), *mu'jam muşannafât al-Qur'ân al-karîm*, Riyadh: Dâr al-Rifâ'î, 4 vols. [Arabic text]
- Islamic Computing Center (1987), *al-Qur'ânic Database: An Electronic Concordance of the Meanings of Qur'an*, London.
- Isotopes Information Center (1969), *Isotopes Information Center Keyword Thesaurus*, Oak Ridge, Tenn.: Oak Ridge National Laboratory.
- Itfîsh, Muḥammad ibn Yûsuf (n.d.), *hamayân al-zâd ilâ dâr al-ma'âd*, Oman: Wazârat al-Turâṭh al-Qawmî wa al-Thaqâfah, 13 vols. [Arabic text, reproduced]
- Jahoda, G. (1963), *Information Storage and Retrieval Systems for Individual Researchers*, New York: Wiley.
- al-Jaşşâs, Abû Bakr Aḥmad ibn 'Aliyy (1968), *aḥkâm al-Qur'ân*, Beirut: Dâr al-Kutub al-'Arabiyyah, 2 vols. [Arabic text, reproduced]
- al-Jawharî, Ismâ'îl ibn Ḥammâd (1984), *al-şihâḥ: tâj al-lughah wa şihâḥ al-'Arabiyyah*, edited by 'Aṭṭâr, Abd al-Qâdir 'Abd al-Ghafûr, Beirut: Dâr al-'Ilm lil-Malâyîn, 3rd ed., 7 vols. [Arabic text, reproduced]

- Joyce, T. and Needham, R. M. (1958), *The Thesaurus Approach to Information Retrieval*, *American Documentation*, 9(3).
- al-Karamânî, Muḥammad ibn Ḥamzah ibn Naṣr (1978), *asrâr al-tikrâr fî al-Qur'ân*, edited by 'Aṭâ, 'Abd al-Qâdir, Cairo: Dâr: al-I'tiṣâm, 3rd ed. [Arabic text, reproduced]
- Karat, J., McDonald, J., and Anderson, M. (1984), *A Comparison of Selection Techniques: Touch Panel, Mouse and Keyboard*, *INTERACT*, 84, September, pp.149-153.
- Kasem, Hishmat Muhammad (1984), *dirâsât fî 'ilm al-ma'lûmât*, Cairo: Maktabat Gharîb. [Arabic text]
- (1978), *Arabic in Specialist Information Systems: A Study in Linguistic Aspects of Information Transfer*, London: University College London, School of Library, Archive and Information Studies, Ph.D. thesis.
- Kassis, H. E. (1983), *A Concordance of the Qur'an*, Berkeley, Calif.: University of California Press.
- Katz, J. and Fodor, J. (1963), *The Structure of a Semantic Theory*, *Language*, 39, 2(1), pp.170-210.
- Kâzim, A. (1979), *Miftahul Qur'an: Concordance and Complete Glossary of the Holy Qur'an*, Chicago.
- Khalîfah, Sha'bân and al-'Ayidî, Muḥammad (1985), *qâ'imat ru'ûs al-mawḍû'ât al-'Arabiyyah al-kubrâ*, Riyadh: Dâr al-Marrîkh, 2 vols. [Arabic text]
- Khalîl, 'Imâd al-Dîn (1979), *muḥâwalah li-tabwîb al-â'yât al-'Ilmiyyah fî al-Qur'ân al-karîm*, in: *Majalat al-Muslim al-Mu'âṣir*, compiled by 'Aṭiyyah, Jamâl al-Dîn, Kuwait, 20, pp.79-134. [Arabic text]
- Khan, A. (1987), *An Index to Qur'anic Teachings*, Islamabad.
- Khatib, M. M. (1984), *The Bounteous Koran: A Translation of Meaning and Commentary*, London: Macmillan Press.
- al-Khawârizmî, Muḥammad ibn Aḥmad ibn Yûsuf (1981), *mafâtiḥ al-'ulûm*, Cairo: Maktabat al-Kuliyyât al-Azhariyyah, 2nd ed. [Arabic text, reproduced]
- Khayat, M. G. (1989), *Directions in Natural Arabic Understanding*, *Proceedings of Second Conference on Arabic Computational Linguistics*, Kuwait, pp.471-488.
- al-Khâzindâr, Ibrâhîm Aḥmad (1978), *qâimat ru'ûs al-mawḍû'ât al-'Arabiyyah*, Kuwait: Dâr al-Buḥûth al-'Ilmiyyah. [Arabic text]

- Kherie, A. B. (1979), *A Key to the Holy Qur'an: Index-cum-Concordance for the Holy Qur'an*, Karachi: The Holy Qur'an Society of Pakistan, 2nd ed.
- al-Khûlî, Amîn (1961), *manâhij tajdîd fî al-naḥw wa al-balâghah wa al-tafsîr wa al-adab*, Cairo: Dâr al-Ma'rifah. [Arabic text]
- Kidwai, A.R. (1987), *Bibliography on the Qur'an*, *Muslim Book Review*, 7(4), pp.79-83.
- Kiger, J. I. (1984), *The Depth/Breadth Tradeoff in the Design of Menu Driven User Interfaces*, *International Journal of Man-Machine Studies*, 20, pp.201-213.
- al-Kindî, Ya'qûb ibn Ishâq ibn al-Şabâḥ (n.d.), *kitâb mâhiyat al-'ilm wa aqsâmuh*, Cairo. [Arabic text, reproduced]
- Knight, G. N. (1980), *Indexing, The Art of*, London: George Allen & Unwin.
- Lancaster, F. W. (1986), *Vocabulary Control for Information Retrieval*, Washington, D.C.: Information Resources Press, 2nd ed.
- (1979), *Information Retrieval Systems: Characteristics Testing and Evaluation*, London: Wailey, 2nd ed.
- (1972), *Vocabulary Control for Information Retrieval*, Washington, D.C.: Information Resources Press, 1st ed.
- Landauer, T. K. and Nachbar, D. W. (1985), *Selection from Alphabetic and Numeric Menu Trees Using A Touch Screen: Breadth, Depth, and Width*, *Proceedings CHI'85 Human Factors in Computing Systems*, pp.73-78.
- Lea, Graham *et al* (1973), *Geosaurus: Geosystems' thesaurus for geoscience and guide to Geotitles Weekly*, London: Geosystems.
- Lee, E. and MacGregor, J. (1985), *Minimizing User Search Time in Menu Retrieval Systems*, *Human Factors*, 27(2), pp.157-162.
- Library of Congress (1966), *Subject Headings Used in the Dictionary Cataloges of the Library of Congress (1966)*, Washington, D.C.: Subject Cataloging Division, Library of Congress, 7th ed.
- Liebelt, L. S., McDonald, J. E., Stone, J. D., and Karat, J. (1982), *The Effect of Organization on Learning Menu Access*, *Proceedings of the Human Factors Society - 26th Annual Meetings*, Santa Monica, CA, pp.546-550.
- Luhn, H. P. (1958), *The Automatic Creation of Abstracts*, *IBM Journal Res. Dev.* 2, 2, pp.159-165.

- MacCafferty, M. (1977), *Thesauri & Thesauri Construction*, Aslib bibliography 7.
- Majma' al-Lughah al-'Arabiyyah (1970), *mu'jam alfâz al-Qur'ân al-karîm*, Cairo: al-Majma'. [Arabic text]
- Mâlik, Mâlik ibn Anas (1987), *muwaṭṭa' al-Imâm Mâlik*, Ibn al-Laythî, Yayâ (narrator), Beirut: Dâr al-Nafâ'is, 10th ed. [Arabic text, reproduced]
- Mandersloot, W. G. B., Douglas, E. M. B., and Spicer, N. (1970), *Thesaurus Control-the Selection, Grouping, and Cross-Referencing of Terms for Inclusion in a Coordinate index Word List*, *Journal of the American Society for Information Science*, 21, January-February, pp.49-57.
- al-Maqdîsî, Zâdah Fayḍ Allah (1906), *fath al-raḥmân li-tâlib âyât al-Qur'ân*, Beirut. [Arabic text]
- al-Marâghî, Muḥammad Muṣṭafâ (1960), *tafsîr al-Marâghî*, Cairo: Maṭba'at Muṣṭafâ al-Ḥalabî, 30 vols. [Arabic text]
- al-Maṣrî, 'Abd al-Ra'ûf (1948), *mu'jam al-Qur'ân: qâmûs al-mufradât al-Qur'âniyyah wa gharîbahâ*, Cairo: Maṭba'at Hijâzî. [Arabic text]
- Mawdûdî, Syed Abî al-A'lâ (1979), *Qur'an Ki Char Bunyadi Istelahat*, translated into English by Abû Asad, Lahore: Islamic Publications. [Urdu-English text]
- McDonald, J. E., Stone, J. D., and Liebelt, L. S. (1983), *Searching for Items in Menus: The Effects of Organization and Type of Target*, *Proceedings of the Human Factors Society - 27th Annual Meetings*, Santa Monica, CA, pp.834-837.
- Merwe, C., Jong, A., and Kanapen, J. (1974), *Thesaurus for Sociological Research Terminology*, Rotterdam: Rotterdam University Press.
- Miller, L. H. (1977), *A Study in Man-Machine Interaction*, *Proceedings of the National Computer Conference*, AFIPS Press, Montvale, NJ, 46, pp.409-421.
- Minsky, M. (1975), *A Framework for Representing Knowledge*, in: *The Psychology of Computer Vision*, edited by Winston, P. H., New York: MacGraw-Hill Book Co., pp.211-277.
- Montgomery, C. A. (1972), *Linguistic and Information Science*, *Journal of American Society for Information Science*, May-June, pp.195-219.
- Mooers, C. N. (1963), *The Educational Challenge of Information Science*, *Automation and Scientific Communication - 26th Annual Meetings*, American Documentation Institute, 1, pp.127

- Muḥammad, 'Abd al-Raḥmân (n.d.), *al-muṣḥaf al-mu'alim*, Cairo: Dâr al-Muṣḥaf. [Arabic text]
- Muḥammad, Muḥammad Muṣṭafâ (1984), *al-fahris al-mawḍû'î li-ayât al-Qur'ân al-karîm*, Baghdad: Maṭba'at al-Khulûd, 2nd ed. [Arabic text]
- Muhannâ, Aḥmad Ibrâhîm (1983), *tabwîb âyî al-Qur'ân al-karîm mina al-nâḥiyah al-mawḍû'iyah*, Cairo: Dâr al-Sha'b. [Arabic text]
- al-Mûlawî al-Tihânawî, Muḥammad A'lâ (1962), *kashshâf iṣṭihât al-funûn*, edited by 'Abd al-Badî', Lutfî, Cairo: al-Mu'assassah al-Miṣriyyah al-'Amah lil-Ta'lîf wa al-Tarjamah wa al-Ṭibâ'ah wa al-Naṣhr. [Arabic text, reproduced]
- Mulvihill, J. and Brenner, E. (1966), *Faceted Organization of a Thesaurus Vocabulary*, Proceedings of the American Documentation Institute 3, pp.175-183.
- Mûsâ, 'Aliyy Hilmî (1982), *istikhdâm al-âlât al-hâsibah al-iliktrûniyyah fî dirâsat alfâz al-Qur'ân al-karîm*, 'Alam al-Fikr, 12(4), pp.1085-1125. [Arabic text]
- Muslim, Abû al-Husayn Muslim ibn al-Ḥajjâj al-Qushayrî (n.d.), *ṣaḥîḥ Muslim*, edited by 'Abd al-Bâqî, Muḥammad Fû'âd, Cairo: Maṭba'at 'Isâ al-Bâbî al-Halabî, 5 vols. [Arabic text, reproduced]
- al-Nadawi, A. A. (1983), *Vocabulary of the Holy Qur'an*, Jiddah: Dâr al-Shurûq. [Arabic-English text]
- al-Nasâ'î, Abû 'Abd al-Raḥmân (1986), *sunan al-Nasâ'î*, edited by Abû Ghuddah, 'Abd al-Sattâr, Halab: Maktabat al-Maṭbû'ât al-Islâmiyyah, 2nd ed., 9 vols. [Arabic text, reproduced]
- Naṣṣâr, Husayn (1965), *mu'jma âyât al-Qur'ân*, Cairo: Maṭba'at Muṣṭafâ al-Halabî, 2nd ed. [Arabic text]
- National Aeronautics and Space Administration (1967), *NASA Thesaurus*, Washington, D.C.: National Aeronautics and Space Administration.
- National Agricultural Library (1967), *Agricultural/Biological Vocabulary*, Washington, D.C.: National Agricultural Libray.
- National Library of Medicine (1971), *Medical Subject Headings*, Bethesda, Md.: U.S. Department of Health, Education, and Welfare.
- Nâzim, Şâlih (n.d.), *dalîl al-ḥayrân fî al-kashf 'an âyât al-Qur'ân*, Beirut: Dâr al-Ma'rifah. [Arabic text]
- Netherlands Armed Forces Technical Documentation and Information Center (1964), *TDCK Circular Thesaurus System* (1964), The Hague, 3rd ed.

- OECD (1972), *Macrothesaurus: a basic list of economic and social development terms*, Paris: OECD.
- O'Connor, J. (1969), *Some Independent Agreements and Resolved Disagreements about Answer-Providing Documents*, *American Documentation*, 20(4), pp.311-319.
- Office of Naval Research, Project LEX. (1967), *Thesaurus of Engineering and Scientific Terms*, New York: Engineering Joint Council.
- Oswald, V. A., Jr. et al (1959), *Automatic Indexing and Abstracting of the Contents of Documents*. RADC-TR-59-208, prepared for the Rome Air Development Center, U.S. Air Force, 31, pp.5-34, 59-133.
- Otten, K. (1974), *Basis for a Science of Information*, in: *Information Science: Search for Identity*, edited by Debons, A., New York: Marcel Dekker, Inc., pp.91-106.
- Paap, K. R., and Roske-Hofstrand, R. J. (1986), *The Optimal Number of Menu Options per Panel*, *Human Factors*, 28(4), pp.377-385.
- Parkinson, S., Sisson, N. and Snowberry, K. (1985), *Organization of Broad Computer Menu Displays*, *International Journal Man-Machine Studies*, 23, pp.689-697.
- Parton, D., Huffman, K., Pridgen, P., Norman, K. and Shneiderman, B. (1985), *Learning a Menu Selection Tree: Training Methods Compared*, *Behaviour and Information Technology*, 4(2), pp.81-91.
- Pearson, J. D. (1975), *Towards Total Bibliographic Control of Islamic Studies*, *British Society for Middle Eastern Studies Bulletin*, 2(2), pp.112-116.
- (1958), *Index Islamicus*, Cambridge. Supplementary after 1977, to be found in publications of the auspices of the Royal Academy for Islamic Civilization.
- Penrice, J. (1985), *A Dictionary and Glossary of the Koran*, London: Curzon Press Limited. [Arabic-English text]
- Pereira, F. and Warren, D. (1980), *Definite Clause Grammar for Language Analysis: A Survey of the Formalism and a Comparison with Augmented Transition Networks*, *Artificial Intelligence*, 13, pp.231-278.
- Perlman, G. (1984), *Making the Right Choices with Menus*, in: *Human Computer Interaction - INTERACT '84*, edited by Shackel, B. North Holland: Elsevier Science Publishers, B.V. IFIP, pp.317-321.
- Perry, J. W., and Kent, A. ed. (1958), *Tools for Machine Literature Searching*, New York and London.

- Pickford, A. G. A. (1968), *An Objective Method for the Generation of an Information Retrieval language*, *The Information Scientist*, 2, pp.17-37.
- al-Qaṭṭān, Mannā' (1986), *mabâḥith fi 'ulûm al-Qur'ân*, Beirut: Mu'assasat al-Rissâlah, 19th ed. [Arabic text]
- Quillian, M. R. (1969), *The Teachable Language Comprehender: A Simulation Program and Theory of Language*, *Communication of the ACM*, 12(8), August, pp.459-476.
- Quintanar, L. R., Crowell, C. R. and Pryor, J. B. (1982), *Human-Computer Interaction: A Preliminary Social Psychological Analysis*, *Behavior Research Methods and Instrumentation*, 14(2), pp.210-220.
- al-Qurṭubî, Abû 'Abd Allâh Muḥammad (1954), *al-jâmi' li-aḥkâm al-Qur'ân*, Cairo, 20 vols, 3rd ed. [Arabic text, reproduced]
- Qutb, Sayyid (1978), *fi zilâl al-Qur'ân*, Beirut: Dâr al-Shurûq, 6 vols. [Arabic text]
- Ramsden, M. J. (1974), *An Introduction to Index Language Construction*, London: Bingley.
- Râmyâr, Bukshûsh Maḥmûd (n.d.), *Qur'an majîd mulḥaq bihi fahris kalimât wa matâlib*, translated into Arabic by Mu'zzî, Muḥammad Kâzim, Tehran. [Persian-Arabic text]
- Rathswohl, E. J. (1975), *Tutorial, Group I: The Nature of Information*, in: *Perspectives in Information Science*, edited by Debons, A. and Cameron, W. J., Leyden: Noordhof, pp.21-30.
- al-Râzî, Fakhr al-Dîn Muḥammad ibn 'Umar (1962), *mafâtiḥ al-ghayb*, Cairo: al-Maṭba'ah al-Maṣriyyah, 32 vols. [Arabic text, reproduced]
- Rees, A. M. and Schultz, D. G. (1967), *A Field Experimental Approach to the Study of Relevance Assessments in Relation to Document Searching*, Cleveland, Ohio: Center for Documentation and Communication Research, School of Library Science, Case Western Research University, 2 Vols.
- , and Saracevic, T. (1966), *The Measurability of Relevance*, *Proceedings of the American Documentation Institute*, 3, pp.255-334.
- Resnick, A. (1970), *Compilation of Thesauri for Use in Computer System, Information Storage and Retrieval*, 6, pp.341-350.
- (1961), *Relative Effectiveness of Document Titles and Abstracts for Determining Relevance of Documents*, *Science*, 134(3484), pp.1004-1006.

- , and Savage, T. (1964), *The Consistency of Human Judgments of Relevance*, *American Documentation*, 15(2), pp.93-95.
- Rickards, D. R. (1966), *A Religious Topical Index of the Qur'an*, Darby, Pennsylvania, M.A. Thesis.
- Rickert, J. E. (1968), *Urban Thesaurus*, Kent, Ohio: Kent State University, Center for Urban Regionalism.
- Ridâ, Muḥammad Rashîd (1949), *tafsîr al-Qur'ân al-ḥakîm*, Beirut: Dâr al-Ma'rifah, 12 vols. [Arabic text]
- Robertson, S. E. (1978), *Indexing Theory & Retrieval Effectiveness*, *Drexel Library Quarterly*, 14(2), pp.40-56.
- Roget, P. M. (1986), *Roget Thesaurus of English Words and Phrases*, edited by Lloyds, S. M., London: Longman Group Limited, 10th ed.
- Rolling, L. N. (1965), *The Role of Graphic Display of Concept Relationships in Indexing and Retrieval Vocabularies*, Brussels: European Atomic Energy Community.
- Rostron, R. M. (1968), *The Construction of a Thesaurus*, *ASLIB Proceedings* 20, pp.181-187.
- Rothman, J. (1974), *Index, Indexer, Indexing*, in: *Encyclopedia of Library and Information Science*, 11.
- Rubinstein, R. and Hersh, H. M. (1984), *The Human Factor: Designing Computer Systems for People*, New York: Digital Equipment Corporation.
- ✓ Sabzwari, G. A. (1982), *Universal Islamic Classification*, *Pakistan Library Bulletin*, 13(2), pp.1-20.
- al-Sagistânî, Abû Bakr (1980), *nuzhat al-qulûb fî tafsîr gharîb al-Qur'ân*, Cairo: Maktabat 'Âlam al-Fikr. [Arabic text, reproduced]
- al-Şâlih, Şubhî (1985), *mabâhiṭh fî 'ulûm al-Qur'ân*, Beirut: Dâr al-'Ilm lil-Malayîn, 16th ed. [Arabic text]
- Salton, G. (1989), *Automatic Text Processing: The Transformation Analysis, and Retrieval of Information by Computer*, New York: Addison-Wesley Publishing Company, Inc.
- (1968), *Automatic Information Organization and Retrieval*, New York: McGraw-Hill.

- Saracevic, T. (1970a), *On the Concept of Relevance in Information Science*, Cleveland, Ohio: School of Library Science, Case Western Reserve University, Ph.D. thesis.
- (1970b), *The Concept of "Relevance" in Information Science: A Historical Review*, in: *Introduction to Information Science*, edited by Saracevic, T., New York: Bowker Company, pp.111-151.
- Sardar, Z. (1979), *Islam: Outline of a Classification Scheme*, London: Clive Bingley.
- Sattar, A. and Sajjadur Rehman (1985), *Coverage of Islamic Literature in Selected Indexing Services*, *International Library Review*, 17, pp.357-370.
- Schnurrer, C. F. (1799-1811), *Bibliotheca Arabica: Actum Nunc Atque Integram*, Leipzig.
- Schreider, Yu. A. (1965), *On the Semantic Characteristics of Information, Information Storage and Retrieval*, 2, pp.221-233.
- Schwarz, E., Beldie, I. and Pastoor, S. (1983), *A Comparison of Paging and Scrolling for Changing Screen Contents by Inexperienced Users*, *Human Factors*, 25(3), pp.279-282.
- Searle, J. R. (1980), *Minds, Brains, and Programs, The Behavioural and Brain Sciences*, 3, pp.417-424.
- Seppala, P. and Salvendy, G. (1985), *Impact of Depth of Menu Hierarchy on Performance Effectiveness in a Supervisory Task: Computerized Flexible Manufacturing System*, *Human Factors*, 27(6), pp.713-722.
- Sezgin, F. (1967), *Geschichte des Arabischen Schrifttums*, Leiden.
- al-Shâfi'î, Ḥusayn Muḥammad (1972), *al-dalîl al-kâmil li-âyât al-Qur'ân al-karîm*, Cairo: al-Majlis al-'Alâ lil-Shu'ûn al-Islâmiyyah. [Arabic text]
- al-Shâfi'î, Muḥammad ibn Idrîs (1969), *al-risâlah*, edited by al-Kîlânî, Muḥammad Sayyid, Cairo: Matba'at Muṣṭafâ al-Ḥalabî. [Arabic text, reproduced]
- Shâh, Ahmad (1979), *miftahul Qur'an: Concordance and Complete Glossary of the Holy Qur'an*, Chicago: Kazi Publications, 2 vols.
- al-Shahrastânî, Muḥammad ibn 'Abd al-Karîm (1976), *al-milal wa al-nihal*, edited by Kîlânî, Muḥammad Sayyid, Cairo: Matba'at al-Bâbî al-Ḥalabî, 2 vols. [Arabic text, reproduced]
- Sherif, F. (1985), *A Guide to the Qur'an*, London: Ithaca Press.

- Shinar, D. and Stern, H. (1987), *Alternative Option Selection Methods in Menu-Driven Computer Programs*, *Human Factors*, 29(4), pp.453-459.
- Shneiderman, B. (1987), *Designing the User Interface: Strategies for Effective Human-Computer Interaction*, Reading MA.: Addison-Wesley Publishing Co.
- Shumway, R. H. (1968), *Some Estimation Problems Associated with Evaluating Information Retrieval Systems*, in: *Evaluation of Document Retrieval Systems: Literature Perspective, Measurement, Technical Papers*, Bethesda, Md.: Westat Research, Inc., pp.78-96.
- Siamwalla and Company (1986), *Qur'an Database: An Electronic Index of Qur'an*, Bangkok.
- Simmons, R. F. (1970), *Natural Language Question-Answering Systems Communications*, *American Computing Machinery*, 13, pp.15-30.
- Sluglett, P. (1983), *Theses on Islam, the Middle East and North-West Africa (1880-1978), Accepted by Universities in U.K. and Ireland*, London: Mansell Publishing Limited.
- Smith, W. (1986), *Computer Color: Psychophysics, Task Application and Aesthetics*, *Proceedings of International Scientific Conference: Work with Display Units*, Stockholm, pp.561-564.
- Snowberry, K., Parkinson, S. and Sisson, N. (1983), *Computer Display Menus*, *Ergonomics*, 26, pp.699-712.
- Soergel, D. (1974), *Indexing Languages and Thesauri: Construction and Maintenance*, Los Angeles, Calif.: Mellville Publishing Co.
- Spark-Jones, K. (1974), *Automatic Indexing: A State-of-the-Art Review*, Washington, D.C.: National Bureau of Standards.
- and Kay, M. (1973), *Linguistic and Information Science*, New York: Academic Press.
- (1970), *Automatic Thesaurus Construction and the Relation of a Thesaurus to Indexing Terms*, *ASLIB Proceedings*, 22(5), pp.226-228.
- Spiliotopoulos, V. and Shackel, B. (1981), *Towards a Computer Interview Acceptable to the Naive User*, *International Journal of Man-Machine Studies*, 14, pp.77-90.
- Stammers, R. B., and Bird, J. M. (1980), *Controller Evaluation of Touch Input Air Traffic Data System: An Indelicate experiment*, *Human Factors*, 22(5), pp.581-589.

- Stevens, M. E. (1980), *Automatic Indexing: A State-of-the-Art Review*, Cambridge: University of Cambridge.
- Storey, C. A. (1927 -), *Persian Literature*, London, in progress.
- Surace, C. J. (1970), *The Displays of a Thesaurus*, Santa Monica, Calif.: Rand Corporation.
- Sutcliffe, A. G. (1988), *Human-Computer Interface Design*, London: MacMillan Education Ltd.
- al-Suyûṭî, Jalâl al-Dîn 'Abd al-Raḥmân (1987), *al-itqân fî 'ulûm al-Qur'ân*, Beirut: Dâr al-Kutub al-'Ilmiyyah, 2 vols. [Arabic text, reproduced]
- (1983), *lubâb al-nuqûl fî asbâb al-nuzûl*, Beirut: Dâr Ihyâ' al-'Ulûm. [Arabic text, reproduced]
- (1978), *asrâr tartîb al-Qur'ân*, edited by 'Atâ, 'Abd al-Qâdir Aḥmad, Cairo: Dâr al-I'tisâm, 2nd ed. [Arabic text, reproduced]
- Syamsu, N. (1977), *Dictionary al-Qur'ân: Indonesian-English Denoting Books and Verses*, Djakarta, Ghalia Indonesia. [Indonesian-English text]
- al-Ṭabarî, Abû Ja'far Muḥammad ibn Ḥusayn (1954), *jâmi' al-bayân fî tafsîr al-Qur'ân*, Cairo: Maṭba'at Muṣṭafâ al-Ḥalabî, 30 vols. [Arabic text, reproduced]
- al-Ṭabarsî, Abû 'Aliyy al-Faḍl ibn al-Ḥassan (1985), *majma' al-bayân fî tafsîr al-Qur'ân*, Beirut: Dâr al-Ma'rifah, edited by al-Maḥalâtî, Hâshim al-Rasûlî and al-Ṭabṭabâ'î, Faḍl Allah al-Yazîdî, 5 vols. [Arabic text, reproduced]
- Tabṭaba'i, H. M. (1984), *Introduction to Shi'i Law: A bibliographical study*, London: Ithaca Press.
- al-Ṭabṭabâ'î, Sayyid Muḥammad Ḥusayn (1974), *al-mîzân fî tafsîr al-Qur'ân*, Beirut: Mu'assasat al-A'lâm lil-Maṭbû'ât, 20 vols. [Arabic text]
- Ṭâsh Kubrî Zâdah, Aḥmad ibn Muṣṭafâ ibn Khalîl al-Rûmî (1985), *mlfiṭah al-sa'âdah wa miṣbâḥ al-siyâdah fî ma'rifat al-'ulûm*, Beirut: Dâr al-Kutub al-'Ilmiyyah, 3 vols. [Arabic text, reproduced]
- al-Ṭayâlîsî, Sulaymân ibn Dâwûd ibn al-Jârûd (n.d.), *musnad Abû Dâwûd*, Beirut: Dâr al-Ma'aifah. [Arabic text, reproduced]
- al-Ṭayyân, Muḥammad Ḥassân and Mîr'alam, Yaḥyâ (1989), *qâ'idat mu'tayât lil-judhûr al-'Arabiyyah*, Proceedings of Second Conference on Arabic Computational Linguistics, Kuwait, pp.104-124. [Arabic text]

- al-Tha'âlibî, 'Abd al-Malik ibn Muḥammad (1984), *al-ashbâh wa al-nazâ'ir*, edited by al-Maṣrî, Muḥammad, Cairo: Maktabat al-Mutanabî. [Arabic text, reproduced]
- The American Library Association (1977), *Thesaurus of Psychological Index Terms*, Washington, D.C.: The American Library Association.
- The Islamic Foundation, *The Muslim World Book Review*, edited by Murad, Khurram and Manazir, Ahsan, U.K., Leicester, in progress.
- al-Tirmidhî, Abû 'Isâ ibn Muḥammad ibn 'Isâ (n.d.), *sunan al-Tirmidhî*, edited by Shâkir, Aḥmad Maḥmûd, Beirut: Dâr al-Kutub al-'Ilmiyyah, 5 vols. [Arabic text, reproduced]
- Townley, H. M. (1967), *It Isn't a Science*, *The Information Scientist*, 1(2), pp.49-50.
- Tullis, T. S. (1981), *An Evaluation of Alphanumeric, Graphic and Color Information Display*, *Human Factors*, 23, pp.541-550.
- al-Tusturî, Abû Sa'îd ibn 'Abd Allah (1908), *tafsîr al-Qur'ân al-'azîm*, Cairo: Maṭba'at al-Sa'âdah. [Arabic text, reproduced]
- U.S. Office of Education (1969), *Thesaurus of ERIC Descriptors* (1970), New York: CCM Information Corporation.
- 'Umar, Aḥmad Mukhtâr and Makram, 'Abd al-'Aâl Sâlim (1982-1985), *mu'jam al-qirâ'ât al-Qur'âniyyah*, Kuwait: Jami'at al-Kuwait, 8 vols. [Arabic text]
- Unesco (1976), *SPINES Thesaurus: A Controlled and Structured Vocabulary of Science and Technology for Policy Making, Management and Development*, Paris: UNESCO, 3 vols.
- (1970), *Guidelines for Establishment and Development of Monolingual Scientific and Technical Thesauri for Information Retrieval*, Paris: UNESCO.
- University of Tulsa (1970), *Exploration and Production Thesaurus*, Tulsa: University of Tulsa, 4th ed.
- Usmani, M. A. (1984), *Islamic Studies - Literature on Qur'an in English Language: A Bibliography*, Karachi: Islamic Documentation and Information Centre.
- and Siddiqui, A. H. (1985), *A Bibliography of Doctoral Dissertations on Islam*, Karachi: Islamic Documentation and Information Centre.

- Verhoff, J., Goffman, W. and Belzer, J. (1961), *Inefficiency of the Use of Boolean Functions for Information Retrieval System*, *Communication of ACM*, 4(12), pp.557-559.
- Vickery, B. C. (1973), *Information Systems*, London: Butterworths.
- (1966), *On Retrieval System Theory*, London, Butterworths, 2nd ed.
- (1960), *Thesaurus - A New Word in Documentation*, *Journal of Documentation*, 16, 4, pp.181-189.
- Viswanathan, G. G. (1976), *Elements of Information Science*, New Delhi: Today and Tomorrows Printers and Publishers.
- Wærn, Y. (1989), *Cognitive Aspects of Computer Supported Tasks*, New York: John Wiley and Sons.
- al-Wâhidî, Abû al-Ḥasan 'Aliyy (1983), *asbâb nuzûl al-Qur'ân*, edited by Şaqr, al-Sayyid Aḥamd, Jiddah: Dâr al-Qiblah lil-Thaqâfah al-Islâmiyyah, 2nd ed. [Arabic text, reproduced]
- Wall, E. (1962), *Information Retrieval Thesauri*, New York: Engineers Joint Council.
- Watts, R. A. (1984), *Introducing Interactive Computing*, Manchester, U.K.: NCC Publications.
- Wellisch, H. (1972), *From Information Science to Informatics: A Terminological Investigation*, *Journal of Librarianship*, 4(3), July, pp.157-187.
- Wensinck, A. J. (1983-69), *Concordance Et Indices De La Traditional Muslmane*, Leiden: E.J. Brill. [Arabic text]
- Wersig, G. and Neveling, U. (1975), *The Phenomena of Interest to Information Science*, *The Information Scientist* 9, pp.127-140.
- Wichansky, A. M. (1986), *Legibility and User Acceptance of Monochrome Display Phosphor Colors*, *Proceedings of International Scientific Conference: Work with Display Units*, Stockholm, May, pp.216-219.
- Willets, M. (1975), *An Investigation of the Nature of the Relation between Terms in Thesauri*, *Journal of Documentation*, 31(3), pp.158-184.
- Woods, W. A. (1970), *Transition Network Grammars for Natural Language Analysis*, *Communications of the ACM*, 13(10), October, pp.591-606.

- Wooster, H. (1970), *0.46872985 Square Inches-A Naive Look at Subject Analysis, Digest of 1970 Annual Meetings*, Philadelphia, Pa.: National Federation of Science Abstracting and Indexing Services, pp.41-48.
- Wright, W. (1967), *A Grammar of the Arabic Language*, Cambridge: University Press, 3rd ed.
- al-Yâsîn, Jâsîm ibn Muḥammad, al-Başârah, Nabîl ibn Manşûr and al-Faddâgh, Maḥmûd ibn 'Abd al-'Azîz (n.d.), *al-jadâwil al-jâmi'ah fî al-'ulûm al-nâfi'ah*, Kuwait: Dâr al-Da'wah. [Arabic text]
- Yovits, M. C. (1969), *Information Science: Toward the Development of a True Scientific Discipline*, *American Documentation*, 20(4), October, pp.369-376.
- al-Zamakhsharî, Abû al-Qâsim Maḥmûd ibn 'Umar (1972), *al-kashshâf 'an ḥaqâq al-tanzîl*, Cairo: Maṭba'at al-Ḥalabî, 4 vols. [Arabic text, reproduced]
- (n.d.), *asâs al-balâghah*, Cairo: Dâr al-Sha'b. [Arabic text, reproduced]
- al-Zarkashî, Badr al-Dîn Muḥammad ibn 'Abd Allâh (1958), *al-burhân fî 'ulûm al-Qur'ân*, Cairo: Dâr Iḥyâ' al-Kutub al-'Arabiyyah, 4 vols. [Arabic text, reproduced]
- Zenker, J. T. (1840), *Bibliotheca Orientalis*, Leipzig.
- al-Zirikilî, Khayr al-Dîn (1986), *al-a'lâm*, Beriut: Dâr al-'Ilm lil-Malâ'yîn, 7th ed., 8 vols. [Arabic text]
- al-Zurqânî, Muḥammad 'Abd al-'Azîm (1943), *manâhil al-'irfân fî 'ulûm al-Qur'ân*, Cairo: Dâr Iḥyâ' al-Kutub al-'Arabiyyah, 2 vols. [Arabic text]

المراجع العربية

- إبراهيم، محمد اسماعيل (١٩٦٨)، معجم الألفاظ والأعلام القرآنية، القاهرة: دار الفكر العربي.
(معاصر)
- ابن الأنباري، محمد بن القاسم بن محمد (١٩٧١)، كتاب إيضاح الوقف والإبتداء في كتاب الله،
دمشق: المطبعة التعاونية، مجلدين.
- ابن البارزي، هبة الله بن عبد الرحيم (١٩٨٨)، ناسخ القرآن العزيز ومنسوخه، تحقيق حاتم صالح
الضامن، بيروت: دار الرسالة.
- ابن تيمية، تقى الدين بن عبد الحلیم (١٩٧٩)، مقدمة في أصول التفسير، تحقيق عدنان زرزور،
بيروت: دار القرآن الكريم، ط ٣.
- ابن الجزري، محمد بن محمد (١٩٢٦)، النشر في القراءات العشر، دمشق: مطبعة التوفيق، مجلدين.
- ابن الجوزي، أبو الفرج عبد الرحمن (١٩٨٤)، نواسخ القرآن، تحقيق محمد أشرف علي، المدينة:
الجامعة الإسلامية.
- ابن حجر، أحمد بن علي (بت) الإصابة في تمييز الصحابة، بيروت: دار الكتب العلمية، ٣ مجلدات.
- ابن حنبل، أحمد (١٩٥٨)، المسند، تحقيق أحمد محمد شاكر، القاهرة: دار المعرفة، ٢٠ مجلد.
- ابن خلدون، عبد الرحمن محمد (١٩٨١)، مقدمة ابن خلدون، بيروت: دار القلم، ط ٤.
- ابن دعامة، قتادة السدوسي (١٩٨٨)، الناسخ والمنسوخ في كتاب الله تعالى، تحقيق حاتم صالح
الضامن، بيروت: مؤسسة الرسالة. (معاصر)
- ابن سينا، الحسين بن علي البجلي (١٩٤٧)، الإشارات والتبهيها، تحقيق سليمان دنيا، القاهرة:
مطبعة الحلبي.
- ابن عربي، محيي الدين (١٩٧٨)، تفسير القرآن الكريم، بيروت، ٤ مجلدات.
- ابن قتيبة، عبد الله بن مسلم (١٩٧٣)، تأويل مشكل القرآن، تحقيق السيد أحمد صقر، القاهرة: دار
التراث، ط ٢.
- ابن كثير، الحافظ عماد الدين الفضل اسماعيل (١٩٦٩)، تفسير القرآن العظيم، بيروت: دار المعرفة،
٤ مجلدات.
- ابن ماجه، أبو عبد الله محمد بن يزيد القزويني (بت)، سنن ابن ماجه، تحقيق محمد فؤاد عبد
الباقي، اسطنبول، مجلدين.
- ابن منظور، جمال الدين محمد (بت)، لسان العرب، القاهرة: مطبعة بولاق، ٢٠ مجلد.

ابن ناقياء، أبو القاسم عبد الله (١٩٧٤)، الجمان في تشبيهات القرآن، تحقيق مصطفى الصاوي الجويني، الإسكندرية: منشأة المعارف.

ابن النديم، محمد بن اسحاق (١٩٧٨)، الفهرست، بيروت: دار المعرفة.

أبو داوود، سليمان بن الأشعث السجستاني (١٩٥٣)، سنن أبو داوود، القاهرة: مصطفى البابي الحلبي.

أبو النور، عبد الوهاب (١٩٧٣)، دراسة في منهج إعداد أنظمة التصنيف مع تطبيقه في إعداد نظام تصنيف للدين الأسلامي، القاهرة: دار الثقافة للطباعة والنشر. (معاصر)

أبو عبيدة، معمر بن المثنى (١٩٥٤)، مجاز القرآن، القاهرة: مطبعة الخولى.

الأزهري، أبو منصور محمد (١٩٦٤-١٩٧٥)، تهذيب اللغة، تحقيق عبد السلام هارون وآخرون، القاهرة: الدار المصرية للتأليف والترجمة، مجلد.

اسحاق، علي شواخ (١٩٨٤)، معجم مصنفات القرآن الكريم، الرياض: دار الرفاعي. ٤ مجلدات. (معاصر)

الأسدأباي، عبد الجبار بن أحمد (١٩٦٩)، متشابه القرآن، تحقيق عدنان زرزور، القاهرة: دار التراث، مجلدين.

الأشقر، عمر سليمان (١٩٨٦)، عالم الجن والشياطين، القاهرة: دار الكتب السلفية. (معاصر)

الأشقر، محمد سليمان (١٩٧٢)، الفهرسة الهجائية والترتيب المعجمي، كويت: دار البحوث العلمية. (معاصر)

الأصفهاني، الراغب أبو القاسم حسين بن محمد (ب ت)، معجم مفردات ألفاظ القرآن، تحقيق نديم المرعشلي، بيروت: دار الكاتب العربي.

إطفيش، محمد بن يوسف (ب ت)، هميان الزاد إلى دار المعاد، عمان: وزارة التراث القومي والثقافة، ١٣ مجلد.

الألوس، سيد محمود (١٩٦٤)، روح المعاني، القاهرة: مؤسسة الحلبي، ٩ مجلدات.

الأمدي، سيف الدين أبو الحسن (١٩٨٥)، الإحكام في أصول الأحكام، تحقيق إبراهيم العجوز، بيروت: دار الكتب العلمية، ٤ مجلدات.

البخاري، أبو عبد الله محمد بن اسماعيل (ب ت)، صحيح البخاري، اسطنبول: المكتبة الإسلامية، ٨ مجلدات.

بركات، محمد فارس (١٩٨٥)، الجامع لمواضيع آيات القرآن الكريم، بيروت: دار قتيبة. (معاصر)

----- (١٩٣٩)، المرشد إلى آيات القرآن الكريم، دمشق: المطبعة الهاشمية.

البغوي، حسين بن مسعود (١٩٨٣)، معالم التنزيل، تحقيق خالد عبد الرحمن العك ومروان سوار، بيروت: دار المعرفة، ٤ مجلدات.

البناء، حسن (١٩٧٩)، مقاصد القرآن الكريم: مقدمة في التفسير، القاهرة: دار الشهاب، (معاصر)

بنت الشاطن، عائشة عبد الرحمن (١٩٦٩)، التفسير البياني للقرآن الكريم، القاهرة: دار المعرفة، مجلدين، (معاصرة)

البنداق، محمد صالح (١٩٨١)، هداية الرحمن لألفاظ وآيات القرآن، بيروت: دار المعرفة الجديدة، (معاصر)

الترمذي، أبو عيسى بن محمد بن عيسى (ب ت)، سنن الترمذي، تحقيق أحمد محمود شاکر، بيروت: دار الكتب العلمية، ٥ مجلدات.

التستري، أبو سعيد بن عبد الله (١٩٠٨)، تفسير القرآن العظيم، القاهرة: مطبعة السعادة.

الثعالبي، عبد الملك بن محمد (١٩٨٤)، الأشباه والنظائر، تحقيق محمد المصري، القاهرة: مكتبة المنتبى.

الخصاص، أبو بكر أحمد بن علي (١٩٦٨)، أحكام القرآن، بيروت: دار الكتب العربية، مجلدين.

الجوهري، إسماعيل بن حماد (١٩٨٤)، الصحاح: تاج اللغة وصحاح العربية، تحقيق عبد القادر عبد الغفور عطار، بيروت: دار العلم للملايين، طبعة ٣، ٧ مجلدات.

حاجي خليفة، مصطفى بن عبد الله القسطنطيني (ب ت) كشف الظنون عن أسامي الكتب والفنون، تحقيق نديم المرعشلي بغداد: مكتبة المثنى.

حسن، عباس (١٩٧٤)، النحو الوافي، القاهرة: دار المعارف، ٤ مجلدات، (معاصر)

حسين، الصالح علي (١٩٨٦)، سبيل الهدى، طرابلس: دار اقرأ، (معاصر)

الحمصى، محمد حسن (١٩٨٤)، قرآن كريم: تفسير وبيان مع فهارس كاملة للمواضيع والألفاظ، بيروت: دار الرشيد، (معاصر)

الخازندار، إبراهيم أحمد (١٩٧٨)، قائمة رؤوس الموضوعات العربية، كويت: دار البحوث العلمية، (معاصر)

طليفة، شعبان والعايدى، محمد (١٩٨٥)، قائمة رؤوس الموضوعات العربية الكبرى، الرياض: دار المريخ، مجلدين، (معاصر)

خليل، عماد الدين (١٩٧٩)، محاولة لتبويب الآيات العلمية في القرآن الكريم، مجلة المسلم المعاصر، تحرير جمال الدين عطية، كويت: دار البحوث العلمية، (معاصر)

الحوارزمى، محمد بن أحمد بن يوسف (١٩٨١)، مفاتيح العلوم، القاهرة: مكتبة الكليات الأزهرية.

- الخولى، أمين (١٩٦١)، مناهج تجديد فى النحو والبلاغة والتفسير والأدب، القاهرة: دار المعرفة. (معاصر)
- الدانى، عثمان بن سعيد (١٩٨٤)، كتاب التيسير فى القراءات السبع، بيروت: دار الكتاب العربى.
- الدمشقى، محمد منير (١٩٨٤)، المعجم المفهرس لآيات القرآن الكريم، القاهرة: دار الكتاب الإسلامى. (معاصر)
- الدمفانى، الحسين بن محمد (١٩٨٣)، قاموس القرآن، تحقيق عبد العزيز سيد الأهل، بيروت: دار العلم للملايين، ط ٤.
- الذهبى، محمد حسنين (١٩٦٧)، التفسير والمفسرون، القاهرة: دار الكتب الحديثية. مجلدين (معاصر)
- الرازى، فخر الدين محمد بن عمر (١٩٦٢)، مفاتيح الغيب، القاهرة: المطبعة المصرية، ٣٢ مجلد.
- رضا، محمد رشيد (١٩٤٩)، تفسير القرآن الحكيم، بيروت: دار المعرفة، ١٢ مجلد. (معاصر)
- الزرقانى، محمد عبد العظيم (١٩٤٣)، مناهل العرفان فى علوم القرآن، القاهرة: دار إحياء الكتب العربية، مجلدين (معاصر)
- الزركشى، بدر الدين محمد بن عبد الله (١٩٥٨)، البرهان فى علوم القرآن، القاهرة: دار إحياء الكتب العربية، ٤ مجلدات.
- الزركلى، خير الدين (١٩٨٦)، الأعلام، بيروت: دار العلم للملايين، ٨ مجلدات. (معاصر)
- الزمخشري، أبو القاسم محمود بن عمر (١٩٧٢)، الكشاف عن حقائق التنزيل، القاهرة: مطبعة الحلبي، ٤ مجلدات.
- (ب ت)، أساس البلاغة، القاهرة: دار الشعب.
- السجستاني، أبو بكر (١٩٨٠)، نزهة القلوب فى تفسير غريب القرآن، القاهرة: مكتبة عالم الفكر.
- السيوطى، جلال الدين عبد الرحمن (١٩٨٧)، الإتيقان فى علوم القرآن، بيروت: دار الكتب العلمية، مجلدين.
- (١٩٨٣)، لباب النقول فى أسباب النزول، بيروت: دار إحياء العلوم.
- (١٩٧٨)، أسرار ترتيب القرآن، تحقيق عبد القادر أحمد عطا، القاهرة: دار الأعتصام، ط ٢.
- الشافعى، حسين محمد (١٩٧٢)، الدليل الكامل لآيات القرآن الكريم، القاهرة: المجلس الأعلى للشئون الإسلامية.
- الشافعى، محمد بن أدريس (١٩٦٩)، الرسالة، تحقيق محمد سيد الكيلانى، القاهرة: مطبعة مصطفى الحلبي.

الشهرستاني، محمد بن عبد الكريم (١٩٧٦)، الملل والنحل، تحقيق محمد سيدالكيلاي، القاهرة: مطبعة البابي الحلبي، مجلدين.

الصالح، صبحي (١٩٨٥)، مباحث في علوم القرآن، بيروت: دار العلم للملايين، ط ١٦ (معاصر)

طاش كبرى زادة، أحمد بن مصطفى بن خليل الرومي (١٩٨٥)، مفتاح السعادة ومصباح السيادة في معرفة العلوم، بيروت: دار الكتب العلمية، ٣ مجلدات.

الطبرسي، أبو علي الفضل بن الحسن (١٩٨٥)، مجمع البيان في تفسير القرآن، تحقيق هاشم الرسولي المحلاتي وفضل الله اليزيدي الطبطباي، بيروت: دار المعرفة، ٥ مجلدات.

الطبري، أبو جعفر محمد بن حسين (١٩٥٤)، جامع البيان في تفسير القرآن، القاهرة: مطبعة مصطفى الحلبي، ٣٠ مجلد.

الطبطباي، سيد محمد حسين (١٩٧٤)، الميزان في تفسير القرآن، بيروت: مؤسسة الأعلام للمطبوعات، ٢٠ مجلد (معاصر)

الطياليسي، سليمان بن داود بن الجارود (ب ت)، مسند أبو داود، بيروت: دار المعرفة.

الطيان، محمد حسان وميرعلم، يحيى (١٩٨٩)، قاعدة معطيات للجذور العربية، كويت: المؤتمر الثاني حول اللغويات الحسابية العربية، ص ١٠٤-١٢٤ (معاصر)

عبد الباقي، محمد فؤاد (١٩٨٣)، المعجم المفهرس لألفاظ القرآن الكريم، اسطنبول: المكتبة الإسلامية (معاصر)

----- (١٩٧٨)، مفتاح كنوز السنة، لاهور: إدارة ترجمان السنة.

----- (١٩٦٩)، تفصيل آيات القرآن الحكيم والمستدرک، بيروت: دار الكتاب العربي.

----- (ب ت) معجم غريب القرآن مستخرجا من صحيح البخاري، بيروت: دار المعرفة، ط ٢ (معاصر)

عبد الهادي، محمد فتحى (١٩٨٩)، المكانز كأدوات للتكشيف وإسترجاع المعلومات، القاهرة: مكتبة غريب (معاصر)

----- (١٩٨٤)، مقدمة في علم المعلومات، القاهرة: مكتبة غريب (معاصر)

----- (١٩٨١)، الفهرسة الموضوعية: دراسة في رموس الموضوعات العربية، جدة: دار الشروق، ط ٢ (معاصر)

عبد، محمد (١٩٨٣)، الإسلام بين العلم والمدنية، القاهرة: دار الهلال، كتاب الهلال، رقم ٢٨٥ (معاصر)

----- (١٩٠٤)، تفسير جزء عم، القاهرة: المطبعة الأميرية (معاصر)

على، نبيل (١٩٨٩)، الفهم الأتوماتي للعربية المكتوبة غير المشكولة، كويت: المؤتمر الثاني حول اللغويات الحسابية العربية، ص ص ٤٦٢-٤٧٠. (معاصر)

عطية، محيي الدين (١٩٨٨)، الكشاف الإقتصادي للأحاديث النبوية، كويت: دار البحوث العلمية (معاصر)

عمر، أحمد مختار ومكرم، عبد العال سالم (١٩٨٢-١٩٨٥)، معجم القراءات القرآنية، كويت: جامعة الكويت، ٨ مجلدات (معاصر)

الغزالي، أبو حامد محمد بن أحمد الطوسي (١٩٨٢)، إحياء علوم الدين، بيروت: دار المعرفة، ٤ مجلدات.

الغرابي، محمد بن محمد بن أوزلع (١٩٦٨)، إحصاء العلوم، تحقيق عثمان أمين، القاهرة: مكتبة الأنجلو المصرية، ط ٣.

الفيروزآبادي، مجد الدين محمد (١٩٥٢)، القاموس المحيط، القاهرة: مطبعة مصطفى الحلبي.

----- (ب ت) بصائر نوى التمييز في لطائف الكتاب العزيز، تحقيق محمد عبد العزيز النجار، بيروت: المكتبة العلمية، ٦ مجلدات.

قاسم، حشمت محمد (١٩٨٤)، دراسات في علم المعلومات، القاهرة: مكتبة غريب. (معاصر)

القرطبي، أبو عبد الله محمد (١٩٥٤)، الجامع لأحكام القرآن، بيروت: إحياء التراث العربي، ٢٠ مجلد.

القطان، مناع (١٩٨٦)، مباحث في علوم القرآن، بيروت: مؤسسة الرسالة، ط ١٩. (معاصر)

قطب، سيد (١٩٧٨)، في ظلال القرآن، بيروت: دار الشروق، ٦ مجلدات. (معاصر)

الكرمانى، محمد بن حمزة بن نصر (١٩٧٨)، أسرار التكرار في القرآن، تحقيق عبد القادر أحمد عملا، القاهرة: دار الأعتصام، ط ٣.

الكندي، يعقوب بن اسحاق بن الصباح (ب ت) كتاب ماهية العلم وأقسامه، القاهرة.

مالك، مالك بن أنس، (١٩٨٧)، موطأ الإمام مالك، رواية يحيى ابن الليثي، بيروت: دار النفائس، ط ١٠.

مجمع اللغة العربية (١٩٧٠)، معجم ألفاظ القرآن الكريم، القاهرة: المجمع. (معاصر)

محمد، عبد الرحمن (ب ت)، المصحف المعلم، القاهرة: دار المصحف. (معاصر)

محمد، محمد مصطفى (١٩٨٤)، الفهرس الموضوعى لآيات القرآن الكريم، بغداد: مطبعة الخلود، ط ٢. (معاصر)

- المرافى، محمد مصطفى (١٩٦٠)، تفسير المرافى، القاهرة: مطبعة مصطفى الحلبي، ٣٠ مجلد.
(معاصر)
- مسلم، أبو الحسين مسلم بن الحجاج القشيري (بت)، صحيح مسلم، تحقيق محمد فؤاد عبد
الباقي، القاهرة: مطبعة عيسى البابي الحلبي، ٥ مجلدات.
- المصري، عبد الرؤوف (١٩٤٨)، معجم القرآن: قاموس المفردات القرآنية وغرائبها، القاهرة: مطبعة
حجازي. (معاصر)
- المقدس، زاده فيض الله (١٩٠٦)، فتح الرحمن لطالب آيات القرآن، بيروت. (معاصر)
- مهنا، أحمد ابراهيم (١٩٨٣)، تبويب آي القرآن الكريم من الناحية الموضوعية، القاهرة: دار
الشعب. (معاصر)
- موسى، على حلمى (١٩٨٢)، استخدام الآلات الحاسبة الألكترونية فى دراسة ألفاظ القرآن الكريم،
عالم الفكر، مج ١٢، جزء ٤، ص ص ١٠٨٥-١١٢٥. (معاصر)
- المولوى التهانوى، محمد أعلى (١٩٦٢)، كشاف إصطلاحات الفنون، تحقيق لطفى عبد البديع،
القاهرة: المؤسسة المصرية العامة للتأليف والترجمة والطباعة والنشر.
- ناظم، صالح (بت)، دليل الحيران فى الكشف عن آيات القرآن، بيروت: دار المعرفة. (معاصر)
- النسائى، أبو عبد الرحمن (١٩٨٦)، سنن النسائى، تحقيق عبد الستار أبو غدة، حلب: مكتبة
المطبوعات الإسلامية، ط ٢، ٩ مجلدات.
- نصار، حسين (١٩٦٥)، معجم آيات القرآن، القاهرة: مطبعة مصطفى الحلبي، ط ٢. (معاصر)
- الواحدى، أبو الحسن على (١٩٨٣)، أسباب نزول القرآن، تحقيق السيد أحمد صقر، جدة: دار القبلة
للثقافة الإسلامية، ط ٢.
- الياسين، جاسم بن محمد والبشارة، نبيل بن منصور والفداغ، محمود بن عبد العزيز (بت)،
الجدول الجامعة فى العلوم النافعة، كويت: دار الدعوة. (معاصر)

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