

**A SYSTEMIC FUNCTIONAL INVESTIGATION OF  
LEXICAL COHESION AND SCHEMATIC STRUCTURE  
IN RESEARCH ARTICLES ON ISLAM AND SCIENCE**

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## ABSTRACT

This dissertation is concerned with a systemic functional linguistic analysis (SFL) of academic articles in the discourse of Islam, Science and Religion. The aim of this research is to reveal the kind of semantic relationships and schematic structure that constitute the text and the role they play in the creation of meanings. An integrated lexical cohesion framework of Halliday and Hassan (1976), Martin (1989 & 1992) and Halliday and Matthiessen (2004) is used to investigate the lexical ties found in the texts. The schematic structure framework of Eggins (2004) is used to investigate what kind of linguistic realizations make up the schematic structure and how writers achieve the purpose of disseminating information through their scholarly work. The corpus of this study consists of selected articles sourced from two journals entitled *Islam and Science* and *Religion and Society* which explore philosophical and religious implications of research in the physical, biological, and social science. The findings obtained from the analysis indicate that repetition is the most predominant lexical relation in four texts, T1, T2, T3 and T4 with 66.6%, 70%, 63.6% and 50 % occurrence respectively. This is followed by hyponymy relation with 16% and meronymy relation with 12 % in T1. The findings on schematic structure reveal that all the texts have 8 stages except T2 which only has 5 stages. *The obligatory stages found in all texts are Purpose of study, Explanation, Argument and Conclusion. These stages could be described as the defining stages of this type of discourse.* The findings from this dissertation could be exploited in the realm of ESP to assist learners of English as a second language to have a better understanding and interpretation of their texts. Since elaboration relation that covers repetition, synonymy and hyponymy as well as extension relation that covers meronymy were explored in the current study, future research may explore enhancement relation covering collocation to investigate the relevance and associations of words with each other in technical and non-technical discourse.

## ABSTRAK

Disertasi ini berkenaan analisa sistemik fungsional (SFL) ke atas artikel-artikel akademik di dalam wacana Sains dan Islam. Kajian ini bertujuan menyingkap jenis-jenis hubungan semantik yang membentuk teks berkenaan dan peranan yang dimainkannya dalam membentuk makna. Kajian ini juga cuba mendapatkan asas kepada struktur skematik yang membentuk teks berkenaan. Untuk mencapai matlamat kajian ini, kerangka kerja bersepadu leksikal kohesi oleh Halliday dan Hasan (1976), Martin (1989 & 1992) dan Halliday dan Matthiessen (2004) dan juga kerangka kerja struktur skematik oleh Eggins (2004) telah digunakan. Korpus kajian ini merangkumi artikel-artikel terpilih daripada jurnal bertajuk *Islam and Science* yang mana ia meneroka implikasi-implikasi falsafah dan keagamaan data berkenaan yang mana boleh didapati di dalam bidang fizikal, hayat, dan sains sosial. Analisa SFL kajian ini telah dilakukan secara manual dengan menggunakan kerangka kerja yang disebut di atas. Melalui analisa kajian ini, didapati bahawa ulangan adalah jenis hubungan yang paling dominan pada kedua-dua teks, Teks T1 dan T2 dengan masing-masing 66.6% dan 70%. Dapatan kajian juga menunjukkan bahawa penggunaan hubungan kompleks agak tinggi berbanding hubungan ringkas untuk kedua-dua teks dengan 60% dan 53%. Dapatan kajian mengungkapkan bahawa kedua-dua teks adalah serupa dari segi elemen struktur skematik wajib manakala kedua-duanya berbeza di dalam elemen struktur skematik opsional. Dapatan untuk kedua-dua jurnal hampir serupa. Dapatan daripada disertasi ini boleh dieksploitasikan di dalam bidang ESP untuk membantu pelajar-pelajar bahasa Inggeris sebagai bahasa ke dua untuk memahami dan mentafsir teks mereka dengan lebih mendalam. Oleh kerana hubungan penghuraian yang meliputi ulangan, sinonimi dan hiponimi dan hubungan lanjutan yang meliputi meronimi telah diterokai di dalam kajian ini, hubungan tambahan meliputi sanding kata mungkin boleh dikaji di masa hadapan. Sebagai potensi kajian masa hadapan, data-data ini mungkin boleh diselidiki dari segi kewujudan sanding kata.

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## **CHAPTER ONE: INTRODUCTION**

### **1.0 Introduction**

The dissertation is divided into nine sections as follows: Section 1.1 on statement of the research area, Section 1.2 on the purpose, Section 1.3 on the research questions, Section 1.4 on the significance, Section 1.5 on the rationale of the study, Section 1.6 on the delimitations of the study, Section 1.7 on the methodology and theoretical framework, Section 1.8 on the outline of the study and Section 1.9 on a chapter summary.

### **1.1 Statement of the Research Area**

The current study is concerned with an analysis of four academic articles on the topic of *Islam and Science* and *Religion and Society*, from the perspective of Systemic Functional Linguistics (SFL).

Research articles on issues related to *Islam and Science and Religion and Society* have not received much attention from the linguistic community, thus; the current study intends to investigate this topic. This study attempts to uncover the cohesive ties of Lexical Cohesion and Schematic Structure in the unfolding texts for four articles on the issue of *Islam and Science and Religion and Society*, from the perspective of (SFL). Identifying such kind of cohesive elements is likely to give us an insight into the most favored cohesive elements found in texts on these topics. Likewise, recognizing the structural information of the articles would inevitably enrich our understanding about the overall stages of the articles.

## **1.2 Aim of Study**

There are two principal purposes in this study. The first purpose of this study is to reveal the kind of semantic relationships that make up texts on *Islam and Science and Religion and Society* and the role they play in the creation of meanings in research articles on *Islam and Science and Religion and Society*. To attain this purpose of analyzing these semantic relations, the study will adopt an integrated theoretical framework of Lexical Cohesion by Halliday and Hasan (1976), and elaborated by Halliday and Matthiessen's (2004), and Martin (1989 & 1992).

The second principle purpose of this study is to uncover the Schematic Structure organizing the texts. The theoretical framework proposed by Eggins (2004) will be used in this study to observe the functional stages of the four articles as well as the similarities and differences that exist in these articles.

### 1.3 Research Question

Based on the aims of this study, questions were formulated as the following:

1. What are the underlying Lexical Ties found in the texts?
2. What are the underlying Schematic Structures in the texts?
3. How do Lexical Cohesion and Schematic Structure contribute to the meaning of the texts?

### 1.4 Significance of the Study

The significance of this study could be summarized in two points. Firstly, the analysis of texts on *Islam and Science* and *Religion and Society* for their semantic relations made up by lexical devices would enrich our understanding of how these relations create cohesion and coherence in the text. This sort of awareness could be exploited in the realm of ESP. Learners could be exposed to such semantic relations, like Lexical Cohesion as in this study, via the emphasis on designed exercises focusing on the relations between lexical items. Gradually, learners will be acquainted with the Lexical Cohesion knowledge that would assist them to strengthen their writing and to avoid a tautological style of writing. Halliday and Martin (1993:124) indicate that “we need to understand how the language of these texts (scientific texts) is organized, in order for us to help our learners find the task of reading scientific texts less daunting.”

Secondly, the analysis of articles for their Schematic Structure organization is very useful in the sense that ESP learners in this field will have a better understanding of how these articles are organized. This study suggests that learners will be more aware of the various stages in the articles. Moreover, learning the various stages of the articles



will assist ESP learners to structure their writing to have a better chance to publish their work in these kinds of journals.

### **1.5 Rationale of the Study**

During the time I was searching for research conducted in the field of systemic functional linguistics in the University of Malaya, I was surprised that only few works have been done on Lexical Cohesion and Schematic Structure. The earliest work could be traced back to 1996 which was a Master's thesis by Srinivas entitled "Lexical Cohesion in Chemistry Texts: An Exploration into Systemic-Semantic Relations" in which she investigated the role played by lexical cohesion in creating semantic relations in chemistry texts. This work, which was published later in 2004 (See Srinivas 2004), was a pioneering work which paved the way for other research to be done. Taking the lead from this study, Supramaniam (2004) explored lexical cohesion and schematic structure in expository texts specifically on media discourse in her Master's thesis entitled "A Systemic Functional Perspective of Lexical Cohesion in English Newspaper Commentaries in Malaysia".

Because of the lack of attention in this area, more research needs to be done in the area of Lexical Cohesion and Schematic Structure. This study is an attempt to contribute to the field of SFL, precisely in the areas of Lexical Cohesion and Schematic Structure. The study differs from other studies in that it will investigate topics to do with Islam, science and religion which have not received much attention.

## **1.6 Delimitation of the Study**

The study has focused on the semantic relations formed by Lexical Cohesion and Schematic Structure. Thus, other research could be conducted to investigate the structural relations (or collocation) between lexical items. Collocation is described as the natural co-occurrence of lexical items together such as ‘to committee suicide’, ‘to reject a proposal’.

This study is confined to four articles and thus the findings cannot be generalized on all articles in this field. Further research might explore a large number of data to confirm the findings of this study. There is a potential for genres like literature or politics to be investigated for their lexical cohesion and schematic structure.

## **1.7 Theoretical Framework and Research Methodology**

The study uses an integrated theoretical framework of Lexical Cohesion proposed by Halliday and Hasan (1976) and Martin (1989 & 1992) and the elaborated work by Halliday and Matthiessen’s (2004), to bring out the cohesive elements embedded in the texts. The framework of Eggins (2004) will be used to identify the Schematic Structure of the texts. Two articles on the topic of *Islam and Science* were selected as data for this study. These articles were taken from the journal “Islam and Science”, which has an official website on the internet ([www.cis-ca.org](http://www.cis-ca.org)). The other two articles for this study are on the topic of *Religion and Society* which were extracted from the journal “Journal of Religion and Society” which also has an official website on the internet (<http://moses.creighton.edu/jrs/toc/About.html>).

The methodology employed by this study is a qualitative one followed by the quantifying of qualitative data in tables. All written data are transcribed to avoid confusion. All sentences in each text are given a different code to ensure that overlap will not occur. After that, the texts are analyzed for their lexical cohesion followed by an analysis of the schematic structure used by the writers. Next, the data is examined to find out how lexical cohesion and schematic structure may contribute to the meaning of the text. The analyses are done manually due to the need of a careful examination, and also that some lexical items might have more than one lexical relation. A more detailed and comprehensive description of the methodology and theoretical framework of lexical cohesion used in this study will be provided in Chapter 3.

## **1.8 Outline of the Study**

This study will comprise 5 chapters. Chapter one has introduced the purpose of the study as well as the significance and the research questions pertinent to the study. Chapter two will provide a historical and conceptual background of SFL and will review the works that have been carried out in the area of lexical cohesion and schematic structure. Chapter three will elaborate on the theoretical framework used for the analysis and the methodology of the study. Chapter four will analyze the data and provide a discussion of the findings. Finally, Chapter 5 will provide the summary of the findings, some pedagogical implications and suggestions for further research.

## **1.9 Chapter Summary**

This chapter has presented the general overview of the research area of this study as well as the analytical framework that will be used. Moreover, the chapter has also shed

some light on the research questions and the main purpose of the current study. The following chapter is the literature review where the works most relevant to the study are reviewed.

## **CHAPTER TWO: LITERATURE REVIEW**

### **2.0 Introduction**

This chapter provides an overview of the literature with respect to this study. The chapter is divided into seven sections. Section 2.1 on Islam and Science, Section 2.2 on the concept of cohesion and coherence, Section 2.3 on the concept of cohesion in English, Section 2.4 on the place of cohesion in the linguistic system of English, Section 2.5 on the works pertaining to lexical cohesion, Section 2.6 on works related to schematic structure and Section 2.7 on a chapter summary.

### **2.1 Islam and Science**

The word *Islam* is derived from the Arabic language which means ‘surrender to God’. Islam is a monotheistic religion, and its followers are called Muslims. They consider Muhammad as the last messenger of God. The sacred scripture for Muslims is called ‘the Qur’an’, which means the revelation of God to Muhammad. Another important source of religious knowledge for Muslims is the ‘Sunna’, which includes the sayings and deeds of the prophet (Encyclopedia Britannica Online, 2010).

According to Encyclopedia Britannica Online (ibid), science is defined as the knowledge which deals with the physical part of the world and its phenomena which requires experimentations in a systemic way as well as unbiased observations.

From the Islamic point of view, science or nature is viewed as an integral part of Islam's general attitude towards God and the whole universe. This relationship implies that the pursuit of scientific knowledge by Muslims has a sacred motive as it points to the Divine (Izutsu, 1964).

### **2.1.1 The Genre of Islam and Science**

Islam and Science deal with the relationship between Islamic society and Science in its general form. One of the overriding contributions to the topic Islam and Science is the book *Science and Islam* written by Muzaffar Iqbal in 2007. In this book, Iqbal gives a full account of the relationship between Islam and science, the decline of Islamic science and contemporary issues related to Islam and modern science. Nature is seen as an integral part of Islam's general view on God and the world (Iqbal, 2007). Muslim scientists have established a spectrum of point of views with regard to the place of science within the context of Islam. Islamic science is a term used to describe the science which was developed in the Islamic civilization in the golden era between the 8<sup>th</sup> and 16<sup>th</sup> century.

### **2.1.2 Linguistic Studies on the Topic of Islam and Science and Religion and Society**

It was found that there are no analytical studies in the genre of Islam and Science and Religion and Society in the field of linguistics. Thus, this research which focuses on Lexical Cohesion and Schematic Structure in the genre of Islam and Science

and Religion and Society is considered as the first of its kind. This study will apply an integrated theoretical framework of Lexical Cohesion proposed by Halliday and Hasan (1976), and elaborated by Halliday and Matthiessen's (2004), and Martin (1989 & 1992) and Schematic Structure framework elaborated by Eggins (2004). The following section will elaborate on the concept of cohesion and coherence and schematic structure.

## **2.2 Definition of Cohesion**

The concept of cohesion simply refers to the characteristics of unity found in a text. A variety of definitions for the term 'cohesion' have been suggested. One of the early definitions was suggested by (Halliday & Hassan 1976:4) in their pioneering work *Cohesion in English* where they described cohesion as "a semantic one; it refers to relations of meaning that exist within the text and that define it as a text". They go further in attempt to explain when cohesion occurs. According to Halliday & Hasan, cohesion occurs when the interpretation of one element is based on another one in a discourse. In another words, it cannot be successfully decoded without referring to the other element. This kind of relation is called cohesion and the presupposing and the presupposed are therefore interconnected into a text (Halliday & Hasan, 1976).

Hoey (1991:3) defined cohesion as the way certain words or grammatical features of a sentence can connect that sentence to its predecessors (and successors) in a text. In a later edition of *An Introduction to Functional Grammar*, Halliday defined Cohesion as "the set of resources for constructing relations in discourse which transcend grammatical structure" (1994:309). According to Eggins, cohesion is defined as "the way we relate or tie together bits of our discourse" (2004:29). She explains further that

the underlying notion behind the concept of cohesion is the semantic tie between an item and another one in a text.

Cohesion is an aspect of discourse legitimately open to analysis. There is another aspect of language that also relates to a text's connectedness and wholeness, though: one which is usually distinguished from cohesion - coherence. Where cohesion looks at the textual, semantic and syntactic connectedness of an utterance, coherence looks at the functional connectedness of the utterance. Thus it involves the study of such factors as the language users' knowledge of the world, the inferences they make and the assumptions they hold. According to Halliday and Hasan, text is not merely sentences in sequence, instead it is “a semantic unit; a unit not of form but of meaning” (Halliday and Hasan, 1976). Eggins (2004) suggests another dimension beside the internal properties of the text or what is called cohesion. This dimension is referred to as the contextual properties or what we call coherence. In Halliday & Hasan 1976, coherence was explained as how a group of clauses and sentences relate to the context. The concept of coherence and its relation to cohesion was not thoroughly discussed in Halliday and Hasan's work (Doyle, 1982). Therefore, the following section will investigate the relation between Cohesion and Coherence.

### **2.2.1 Cohesion and Coherence**

The relationship between cohesion and coherence has considerably been addressed by many researchers. The idea that cohesion and coherence are two separate concepts has been adopted by de Beaugrande and Dressler (1981). Cohesion and coherence, to them, are considered to be two of the seven standards for the text to be deemed as communicative. They argue that cohesion is concerned with the connection between the elements of the surface text such as the real words we hear and see.



Coherence, on the other hands, is concerned with the accessibility and relevance of the elements underlying the surface text such as the configuration of concepts and ideas.

Hasan (1984:181) explains the term coherence as “the property of unity”. She claims that coherence is relative and therefore can only be measured from the perspective of a reader’s evaluation. She distinguishes between cohesion and coherence in the sense that cohesion is objective and can be recognized automatically. Coherence, on the other hand, is subjective and is applied to the judgments of the reader which may vary from one to another. The next section will explicate on the concept of cohesion in the English Language.

## **2.3 Cohesion in English**

### **2.3.1 Text**

A text is distinguished from non-text in a way that the former forms a unified whole whereas the latter is no more than a group of unrelated sentences. This unity of text is a unity of use and not of grammar (Halliday and Hasan, 1976). In the field of linguistics, Halliday and Hasan (1976:1) define the word text as “any passage, spoken or written, of whatever length, that does form a unified whole”. The unity of a text is considered to be a semantic one in which less concern is given to structure. Thus, a text is realized by sentences (Halliday and Hasan, 1976). For the text to achieve its unity, the text is presumably indicated to favour certain characteristics that distinguish it from being disconnected sentences. These characteristics are called texture. More elaboration on the concept of texture is given in the following section.

### 2.3.2 Texture

The term texture is used to refer to the text property which distinguishes any text from being non-text. The following simple example taken from Halliday and Hasan, (1976:2) elaborates the concept of texture.

*Wash and core six cooking apples. Put them into a fireproof dish.*

It is easy to notice that the pronoun ‘**them**’ in the second sentence refers back to “**the six cooking apples**” in the first sentence. This function of ‘referring back’ is called **anaphoric**, and this anaphoric function creates the cohesion between the two sentences which makes them together form a text or part of a whole text. The cohesive relation found in the text between **them** and **six cooking apples** creates what is called texture. The next section will demonstrate the types of cohesion in English.

### 2.3.3 Cohesion in English

Halliday and Hasan (1976) divided the cohesive resources into five categories. These categories are reference, lexical cohesion, substitution, ellipsis and conjunction. Below is an explanation for the five categories.

**Reference** is a grammatical resource that is used to indicate whether something was mentioned somewhere earlier in the text, or whether it has not yet been mentioned in the text (Thompson, 2004). Here is an example from Thompson (2004: 180):

(1) They came again into their bedroom. A large bed had been left in it.

In (1), the reference '**it**' refers back to '**their bedroom**', whereas the article 'A' in '**a large bed**' indicates that this has not appeared yet.

**Ellipsis** is the grammatical resource by which a whole clause can be omitted and readers should refer to the previous clause to get the meaning. The following example extracted from Thompson (2004: 180) will illustrate how cohesion is achieved through ellipsis.

(2) 'How old is he?' 'Two months'

In (2), the answer presupposes the missing phrase 'He is .... Old'.

**Substitution** is a textual relation in which "a sort of counter which is used in place of the repetition of a particular item" (Halliday and Hasan, 1976:89). The following example taken from Thompson (2004: 180) will show how substitution occurs.

(3) It's large for five months, but not abnormally so.

In (3) the word '**so**' stands in the place of 'large **for five months**'.

**Conjunction** is a device that tells the reader to associate two chunks of text in the way it specifies. Conjunctive devices are classified into four types: additive, adversative, causal and temporal. Example (4) illustrates how conjunction is used.

- (4) For the whole day he climbed up the steep mountainside, almost without stopping. Yet he was hardly aware of being tired. (Halliday and Hasan, 1976:239).

In (4), the word ‘so’ explicates the cause and the effect relation between the two sentences.

**Lexical cohesion** which means reiteration of a lexical item occurs via the repetition of the lexical item. The reiteration could be a synonymy, an antonym or a superordinate. For instance, in example (5) ‘**the climb**’ is a synonymy of ‘**the ascent**’.

- (5) I turned to the ascent of the peak. The climb is perfectly easy. (Halliday and Hasan 1976: 279)

Another type of lexical cohesion is called **collocation** which occurs through the association of lexical items that they co-occur frequently. This type is excluded from the scope of the current study. The following section will briefly present Halliday and Hasan’s model of cohesion.

### 2.3.4 Halliday and Hasan's Model of Cohesion

Although several studies have been conducted on cohesion such as Jakobson (1960), Quirk, Greenbaum, Leech, and Svartvik (1972), Gutwinski (1976), Halliday and Hasan's model (1976) in their pioneering work "Cohesion in English" is deemed as the most comprehensive one. This work which established the theory of cohesion has paved the way for other research to be done.

In Halliday and Hasan's model (1976:5), cohesion is "expressed partly through the grammar and partly through the vocabulary." Thus, there are two types of cohesion; Grammatical Cohesion and Lexical Cohesion. Cohesive devices are classified into five categories: reference, substitution, ellipsis, conjunction, and lexical cohesion. Some of these devices are grammatical like (reference, substitution and ellipsis), while one type is lexical (lexical cohesion). The last type (conjunction) is in between the two, "mainly is grammatical, but with a lexical component in it" Halliday and Hasan (1976:6).

Halliday and Hasan (1976) divide lexical cohesion into two broad types: **Reiteration** and **Collocation**. Reiteration is achieved either through the repetition of the same lexical item or a lexical item that is different but systematically related to the first one. According to Halliday and Hasan (1976: 278) reiteration refers to "a form of lexical cohesion which involves the repetition of a lexical item, at one end of the scale; the use of a general word to refer back to a lexical item, at the other end of the scale; and a number of things in between-the use of synonymy, near synonymy, or superordinate". Collocation is the other part of lexical cohesion that takes place via the occurrence of lexical items that regularly co-occur.

Although Halliday and Hasan's (1976) model is widely used to study cohesion there are a number of criticisms. Selected criticisms are presented here.

### **2.3.5 Criticism about the 1976 Model of Cohesion**

Linguists such as Stotsky (1983), Bamberg (1983) and Doyle (1982) have criticized the pioneering work of Halliday and Hasan although the model of cohesion introduced by Halliday and Hasan has been welcomed widely.

Stotsky (1983) criticizes the lexical cohesion model proposed by Halliday and Hasan in 1976. She justifies her criticism by saying that the data used in Halliday and Hasan's analysis is merely derived from conversational and literary discourse and not from expository texts. She clarifies the difference between the vocabulary used in essay writing and that of conversational and literary discourse. She suggests a modified model based on the vocabulary of expository writing which seems to be more helpful to composition teachers.

Bamberg (1983) who is concerned about the pedagogic implications of coherence argues that for coherence to be created solely by cohesive ties is not sufficient. She argues that using hypothetical texts for analysis may not be of help for students. She suggests analyzing passages of students' writings.

Doyle (1982) argues that the framework of Halliday and Hasan for cohesion has not delved deeply into the issue of coherence in texts. Doyle (ibid: 390) further adds, "the relationships among propositions in the textual world created by the writer and recreated by the reader, remain unexamined."

## 2.4 The Place of Cohesion in the Linguistic System of English

Three fundamental functional-semantic components make up the linguistic system of English, the ideational, the interpersonal and the textual. Table 2.1 illustrates the place of cohesion in the linguistic system of English.

**Table 2.1: The Place of Cohesion in the Description of English**

Ideational		Interpersonal	Textual		
Experiential	Logical		(Structural)		(non-structural)
By rank:  Clause: transitivity  Verbal group: Tense  Nominal group: epithesis Adverbial group: circumstance	All ranks:  Paractactic and hypotatic relations (condition, addition, report)	By rank:  clause: Mood, modality  Verbal group: person  Nominal group: attitude Adverbial group: comment	By rank:  Clause: theme  Verbal group: voice  Nominal group: deixis Adverbial group: conjunction	Cross-rank:  Information unit: Information Distribution, Information focus	<b>Cohesion</b> Reference Substitution Ellipsis Conjunction Lexical cohesion

(Source: Halliday and Hasan, 1976)

The ideational component is concerned with “the expression of ‘content’, with the function that language has of being about something” (Halliday and Hasan, 1976:26). This component comprises two parts, the experiential and the logical experience. The interpersonal component is concerned with “the social, expressive and conative functions of language, with expressing the speaker’s ‘angle’: his attitudes and judgments, his encoding of the role relationships in the situation, and his motive in saying anything at all” (Halliday and Hasan, 1976:26-27).

The last component which is the textual or text-forming component contains the resources for creating cohering and relevant text within itself. The textual component has two parts: the structural part focuses on issues like the organization of the clause as a message and the non-structural part which is concerned with cohesion. Cohesion links the elements which are structurally unrelated via the interpretation of one element for the other. The next section is a review for the works done in the area of lexical cohesion.

## **2.5 Review of Works on Lexical Cohesion**

Several works pertaining to lexis in texts within the point view of (SFL) has contributed to the body of knowledge. The works of Martin (1981, 1989 & 1992), Hoey (1991), Myers (1991) and Srinivass (1996 & 2004) will be reviewed in this section.

Martin's prominent interest in lexis is in the role it plays to create the 'textuality' in text. He attempts to analyze how the lexical relations are able to contribute to textual cohesion. Thus, he investigates lexis from the 'ideational' perspective. Martin (1992) proposes four different perspectives for understanding the lexical relations: collocation, lexis as most delicate grammar, lexical cohesion and field taxonomies (Tucker: 1998).

Martin (1992) divides the lexical organization within the lexicogrammar into two broad types: 'taxonomic relations' and 'nuclear relations'. The taxonomic relations, which represent the paradigmatic axis, include hyponymy, synonymy, meronymy and opposition. Nuclear relations, on the other hand, represent the syntagmatic axis and demonstrate 'the ways in which actions, people, places, things and qualities are configured as activities in activity sequence' (Martin, 1992:309). Taxonomic relations will be the subject of this study. More details regarding Martin's framework will be provided in chapter three.



In the realm of science, Myers (1991) carries out a research on lexical cohesion and specialized knowledge on scientific and popular science texts using Halliday and Hasan's (1976) cohesion model. He found that the cohesive patterns of the two texts are different owing to the different use of readers' knowledge in the two kinds of texts. Generally, scientific texts' readers are required to have knowledge of lexical relations to see the cohesion of the text, meanwhile; popularizations' readers should notice the cohesive relations to deduce the lexical relations. For Myers, readers must be equipped not only with knowledge of lexicon but with domain knowledge. Moreover, he states that learning the language of science entails learning collocations and idioms, which word or phrase count as technical term and which are considered as general usage. The current study differs from Myers's work in the sense that Myers investigated scientific texts using Halliday and Hasan's model (1976) whereas this study explored scientific texts from the point view of Islam using an integrated framework.

Remaining in the field of science, Srinivass's (2004) research of content analysis of chemistry texts is based on Hallidayan's view of lexis being a linguistic level by itself and different from grammar. The theoretical framework of Martin (1981, 1985b & 1992) was adopted for the analysis. The study is an investigation into how meaning is created via the employment of the resources of lexical cohesion. It also shows the organization and the semantic relations maintained between the lexis throughout the entire text. It goes further to show how system networks may be developed to depict the knowledge of chemistry in a sub-classification and cross-classification manner. The findings suggest the importance of applying Halliday's theory to illustrate the distribution of lexis along the syntagmatic and paradigmatic level. The importance of applying this theory is to help learners of English as a second language, in the field of science, to interpret any text in an effective way. The similarity between Srinivass's work and the current study is that both use a Hallidayan linguistic

model in the study of cohesion, however; they differ in their methodology and data for analysis.

In his book on “Patterns of Lexis in Text”, Hoey (1991) presents his model on the role of lexical cohesion in discourse which further developed in articles published in 1994 and 1995. The underlying principle of his work is to place a great deal of emphasize on the role played by lexis in forming the text. He notes that lexis, in comparison with other grammatical cohesive items, is the only one can form “multiple relationships” at a time and describes it as “the dominant mode of creating texture”. Hoey pays a lot of attention to repetition relations using them as a guide to identify the sentences which are central to the meaning of a text and as a result showing the organization of the text.

Turning to the educational field, there are a number of studies conducted on lexical cohesion analysis which provide us with insights into the significance of making explicit the resources of lexical cohesion. The works of Muto (1990), Xuefan (2007) and MacMillan (2007) will be reviewed.

Muto (1990) investigates the extent to which acquiring the knowledge of lexical cohesion would help EFL students in writing and reading skills. The researcher adopted Halliday and Hasan’s (1976) model of cohesion. Extensive reading classes were conducted to improve the skills of reading and to get students to deduce the meaning of unfamiliar words via the knowledge of “discourse-organizing vocabulary”. The findings show enormous effects of learning about lexical cohesion explicitly in comprehending the text. In the writing skill, students exploited the knowledge of lexical cohesion in interpreting the text and consequently using it in their writing. The students’ writings show a variety of vocabulary usage.

Xuefan (2007) attempts to find out the dominant type of lexical cohesion in the writing of Chinese college EFL learners and whether the text type and the language proficiency would have any kind of effect or variation on the use of lexical cohesion. Halliday and Hasan's (1976) model was adopted to identify the lexical ties in the data. To achieve the purpose of the study, 30 undergraduate students from the university were asked to write one narrative and one argumentative text. Results show that repetition was the dominant lexical relation in students' writing. Variation of language proficiency has no influence on the use of lexical devices, however; changing the text type had a partial influence on the use of lexical cohesive devices. The data also shows that no link was found between the text type and the reiteration ties, however; a significant number of collocation ties were found in narrative texts than that of argumentative texts. Similar to the current study, Xuefan's work shows that analyzing texts would enhance students' awareness of how to improve their writing's quality.

MacMillan (2007) conducts a study on the role of lexical cohesion in the evaluation of EFL reading proficiency. The argument of this study is whether lexical cohesion plays an indispensable role in a more efficient reading of texts for the Test of English as a foreign Language (TOEFL). A corpus of 608 fixed-response items from the reading comprehension section were analyzed using Hoey's 1991 model of lexical cohesion. MacMillan's findings indicate that different examples of repetition relations or 'lexical links' were found in all question types of the test.

The next section will focus on elaborating the schematic structure concept.

## **2.6 A General Review of Linguistic Research on Schematic Structure**

Schematic structure has received a great deal of attention from systemic functional linguists. Starting from Halliday, the father of systemic functional linguistics who carried out some investigation of the nature and functions of genre in his book “Language as social semiotic: The social Interpretation of Language and Meaning”, Halliday (1978:61) suggests that “in order to give a complete characterization of texture, we should have to make reference also to generic structure, the form that a text has as a property of its genre.”

Hasan (1989) in her collaborative work with Halliday went beyond the investigation of genre study. First, she defines ‘genre’ as a type of discourse and then proceeds to establish her own theory regarding generic analysis which always referred to as “generic structure potential” or (GSP) (Halliday & Hassan, 1989). In her generic structure potential theory, Hasan stresses the importance of contextual configuration, in making kind of prediction regarding the structure of the text as well as the sequence of the elements within the structure. The contextual configuration is made up of - field of discourse, tenor of discourse, and mode of discourse. Another important proposition of the theory is every genre must have three elements: obligatory, optional, and recursive elements. Obligatory elements and their sequence are essential for defining the type of genre. Meanwhile, the optional elements are responsible for the variation of texts within the same genre.

The following example will elaborate on the issue. A group of students were given an assignment to write about their experience in learning a new language. The texts produced by students are likely to be different, however; they will share some similarities as all the texts belong to the same genre which is the narrative genre. All the texts produced by the students contain the same obligatory elements which are the

reason for the textual similarities founded in their texts. Meanwhile, the texts will have textual differences owing to the fact of using various optional elements in the generic structure. Hasan is considered as the first linguist in the domain of systemic functional linguistic who has conducted a systemic investigation into the concept of genre.

Hasan's theory is regarded as sufficient to a certain extent as it provides an interpretation of the similarities and differences among the texts of a same genre, yet it has some theoretical flaws. First, the framework of Hasan is heavily dependent on a linear sequence, in which the obligatory or optional elements are all arranged in a linear structure following each other. According to Ventola, this linear sequence does not necessarily correspond to the sequence in real texts. Second, Hasan's analysis of genre is static rather than being a dynamic perspective, in which it faces some difficulties in dealing with some failures in social interactions, such as the transaction in a market. Thus, although the GSP's model presented by Hasan enriches the field of genre analysis with essential basis, the theory incorporates some flaws which need to be ameliorated (Ren, 2010).

Ventola (1987) addresses the above flaws and proposed a flowchart of service encounter genres, in which she approaches genre analysis from a dynamic perspective rather than a static one. In Ventola's flowchart, the options at a certain phase are conditioned by the preceded segment of a text. Moreover, the flowchart theory provides a satisfactory elaboration on the unsuccessful transaction such as a service counter.

Martin (1985) defines the term schematic structure in a paper entitled 'Process and Text: Two Aspects of Human Semiosis' as "a way of getting from A to B in the way a given culture accomplishes whatever the genre in question is functioning to do in that culture" (Martin, 1985:251). There is much in common between the two models proposed by Hasan (1989) and Martin (1985). Both of them emphasize that there is a

relationship between the sequence of stages and field, mode and tenor options. Their main difference is that Hasan distinguishes between obligatory and optional elements, whereas Martin does not make such distinction (Ren, 2010).

Supramaniam (2004) investigates from a systemic functional linguistic point of view the lexical cohesion and schematic structure of two texts from the genre of newspaper commentaries. Halliday and Hasan's (1976) cohesion theory and Martin's (1981, 1985b & 1992) network of taxonomic relations were adopted for the analysis. The findings show that the repetition is the most favored cohesive tie in the two texts. Moreover, the texts follow a consistent register complimentary to their 'field', 'mode' and 'tenor'.

Eggins (2004) in her book "An Introduction to Systemic Functional Linguistics" suggests that native speakers can predominantly recognize the genre once they hear the first stage. For instance, *once upon a time* indicates that this is a narrative of mythical events. She proposes a functional approach for analyzing the schematic structure of genres, called 'functional labeling'. The current study will deploy the framework of Eggins (2004) for analyzing the data. More elaboration on the framework is given in chapter 3.

In the area of English for specific purposes, Swales' (1981, 1990) works on the generic structure of English RAs are of paramount significant. Swales focuses on the organization of RA in view of the communicative relationship between the writer and a specific community of readers. This relationship is displayed in stages or moves that constitute the text.

Swales (1990) argues that a genre contains a class of communicative events in which language plays an essential role. In other words, Swales considers only linguistic activities as communicative events; non-linguistic activities are excluded from the

category. For a collection of communicative events to be regarded as a genre, they should all share one purpose. This view towards genre is in a harmony with that of Martin or Eggins. However, Swales's point of view excluding casual conversation and ordinary narratives as genres is against the opinion taken by many systemic functional linguists. (Ren, 2010).

Posteguillo (1999) investigates the schematic structure of research articles in the field of computer science using Swales' CARS model for the analysis. CARS (Creating A Research Space) model refers to an investigation by Swales for the introduction of 48 articles in the natural and social sciences where he found that most of them have four rhetorical moves. 40 articles from computing academic research journals were analyzed to find out why and how research articles in the field of computer science do not comply systematically with the IMRD writing pattern (or Introduction, Methods, Results and Discussion). The findings revealed that the writing structure of computer science research articles is not compliant with the IMRD pattern.

Kuhi (2008) examines the preface section of 21 textbooks in applied linguistics based on the genre theory of Swales 1981 & 1990. The purpose of the study is to define the moves based on their functions. The findings show that all the prefaces of the study incorporate a four-move schema realized via various textual devices. This sort of finding could be of value for teachers in the realm of English for Specific Purposes (ESP). Moreover, such findings would increase the awareness of students towards a better understanding of their textbooks.

## **2.7 Chapter Summary**

This chapter provided an overview of the literature relevant to Lexical Cohesion and Schematic Structure. The literature shows that there is great potential for research to

be carried out in the genre of *Islam and Science* and *Religion and Society* as it has not been yet explored from an SFL point of view. Thus, the current study will value the genre of Islam and Science via investigating lexical cohesion and schematic structure. The following chapter will elaborate on the theoretical framework and methodology used in this study.



## **CHAPTER THREE: THEORETICAL FRAMEWORK AND RESEARCH METHODOLOGY**

### **3.0 Introduction**

This chapter includes three main sections. Section 3.1 on the theoretical framework with respect to this study, Section 3.2 on the methodology of the research which uses an integrated theoretical framework of lexical cohesion (proposed by Halliday and Hasan (1976), and elaborated by Halliday and Matthiessen's (2004), and Martin (1989 & 1992)). Schematic structure will be studied using the elaborated framework by Eggins (2004), and Section 3.3 on summary of the chapter.

### **3.1 Theoretical Framework**

In the previous chapter, the concept of cohesion and coherence as well as schematic structure was explored. Moreover, the five categories of cohesion namely, reference, lexical cohesion, substitution, ellipsis and conjunction were reviewed.

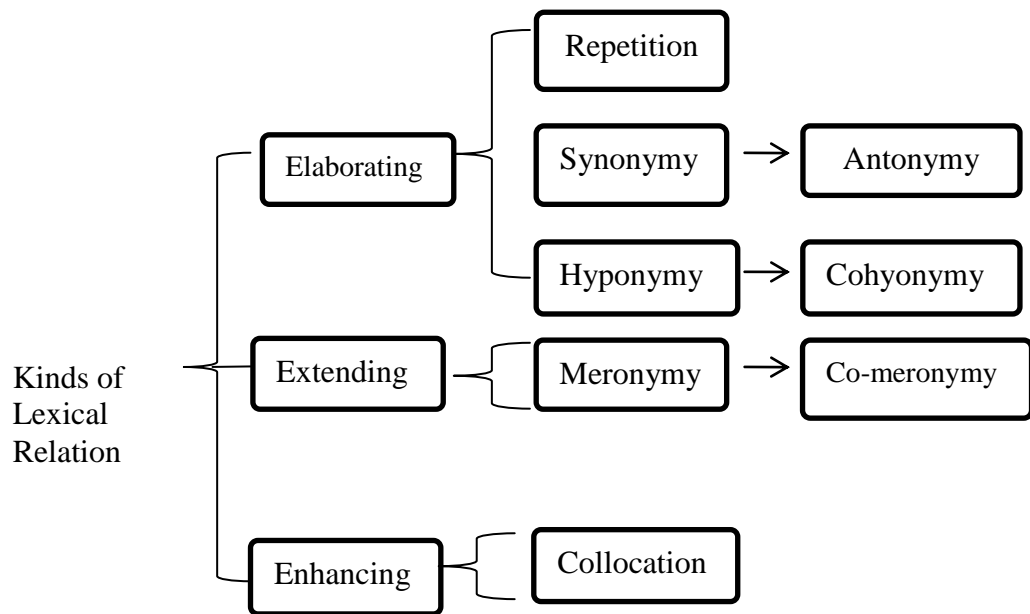
This chapter will focus on how the frameworks of lexical cohesion and schematic structure are used as analytical tools for analyzing the data of this study. To

identify the cohesive aspects as well as the schematic structure of the overall organization of the texts, the concept of cohesion was first introduced by Halliday and Hasan in 1976. It was refined later in 1985 by Halliday, and finally by Halliday and Matthiessen in 2004. The next section will elaborate on the concept of lexical cohesion proposed by Halliday and Hasan (1976), Martin (1989 & 1992) and Halliday and Matthiessen's (2004).

### **3.1.1 Lexical Cohesion**

Egins (2004) defines a lexical relation as a mean of showing how systematically words in a text are connected to each other and how they cluster to establish lexical sets or lexical strings. The relationship between the lexical items is either paradigmatic or syntagmatic. The paradigmatic dimension, which depends on a semantic relation, can be interpreted in terms of elaboration (repetition, synonymy and hyponymy) and extension (meronymy) (Halliday&Matthiessen, 2004, 571). More details will be given in the following section.

The other type of relationship is syntagmatic where lexical items are likely to occur together or collocate with one another. This co-occurrence tendency is known as collocation (Halliday&Matthiessen, 2004). This type of relation, namely syntagmatic is beyond the scope of this study and will be excluded accordingly. Figure 3.1 below is an illustration for the integrated framework adopted in this study.



**Figure3.1: A System Network Showing the Theoretical Framework of Lexical Cohesion**

The primary kinds of lexical relations are shown in Figure 3.1. They are based on either the paradigmatic or the syntagmatic relations. The paradigmatic relations could be divided into elaboration and extension relations. Elaboration relations include repetition, synonymy and hyponymy relations. The synonymy relation incorporates another type of relation called Antonymy. The relation hyponymy has another relation known as cohyponymy. Extension relations are built up around meronymy relation. This relation incorporates another relation described as comeronymy. A syntagmatic relation, on the other hand, is manifested through an enhancing relation. An enhancing relation has merely one type of relation called collocation. Collocation is a tendency for lexical items to co-occur. This relation of collocation, however, is beyond the scope of this study.

### 3.1.2 Elaboration Relations: Repetition, Synonymy and Hyponymy

#### 3.1.2.1 Repetition

Repetition is described by Halliday and Matthiessen (2004) as the ‘most direct form’ of lexical cohesion. Repetition occurs when a lexical item is repeated, for instance, the word “bear” in the following example.

##### **Example 1**

Algy met a bear. The bear was bulgy. (Halliday and Matthiessen, 2004: 571)

In Example 1, the word “bear” in the second sentence refers back to the first one. The example incorporates another tie which is the reference item “the”. This is to help the listener to know which bear is intended. However, the referential tie is not always necessary for the recovery of meaning. The following example shows how a mere lexical tie could occur.

##### **Example 2:**

Algy met a bear. Bears are bulgy (Halliday and Matthiessen, 2004 :572)

Example 2 shows that the item “bears” is a generic term which includes all bears. However, there is still a lexical cohesion between the two words. In this time, there is only one tie; whereas the previous example used two ties, one referential and the other one was lexical relation.

The lexical items might be morphologically identical as in *fox, fox*. However, it is not necessary for a lexical item to correspond morphologically to another item in order to realize a repetition relation. For example, *dine, dining, diner* are derivational variant kind of examples and they all refer to the same thing. Hence, the occurrence of

any one creates a repetition relation with any of the others. (Halliday and Matthiessen, 2004)

### **3.1.2.2 Synonymy**

Synonymy is another type of elaboration relation where two lexical items have the same or similar meaning. See the following example.

#### **Example 3:**

He was just wondering which road to take when he was startled by a noise from behind him. It was the noise of trotting horses... He dismounted and led his horse as quickly as he could along the right-hand road. The sound of the cavalry grew rapidly nearer..... (Halliday and Matthiessen, 2004: 573)

In Example 3, an instance of synonymy is established between the lexical items “noise”, “sound”, “horses” and “cavalry” where they have the same meaning. Here, the cohesion is achieved without the dependence on the identity of reference.

Example 4 shows an instance where cohesion of synonymous type does not necessarily need to rely on the identity of reference.

#### **Example 4:**

There was a man of Thessaly  
And he was wondrous wise.  
He jumped into a hawthorn bush  
And scratched out both his eyes  
And when he saw his eyes were out  
With all his might and main  
He jumped into a quickset hedge  
And scratched them in again  
(Halliday&Matthiessen, 2004:574)

Although the “quickset hedge” is not the same particular entity as the “hawthorn”, there is still a relation of cohesion between the two lexical items.

On the other hand, there are examples of synonyms, with identity of reference, where the cohesive items incorporate a synonym of the same or higher level of generality that called superordinate as illustrated in Example 5.

**Example 5:**

Four-twenty blackbirds, baked in a pie...

When the pie was opened, the birds began to sing.

(Halliday and Matthiessen, 2004:573)

Example 5 is an example of synonymy where the two lexical items “blackbirds” and “birds” share a similar meaning, however, the lexical “birds” is more general than “blackbirds”; therefore, it is a superordinate term. The example is accompanied by the reference item *the* which, with the interaction of lexical cohesion, is considered as a principle way for tracking participants in discourse (Halliday and Matthiessen, 2004).

Synonymys are closely related to the category of hyponymy due to the reason that difference in meaning is inconsiderable. Martin states that “the difference between synonyms and co-hyponymys is in other words largely a question of delicacy with respect to a particular field.” (Martin, 1992:301) In fact, he argued that repetition is the only true synonymy.

### 3.1.2.3 Antonymy

Another relation of lexical cohesion is antonymy. An antonymy relation occurs when two lexical items have an opposite meaning. Example 6 illustrates the relation.

#### **Example 6:**

**He fell asleep. What woke him was a loud crash.**

In Example 6, the two lexical items “asleep” and “woke” have an opposite meaning, therefore; a relation of antonymy is established between the two terms. (Halliday&Matthiessen, 2004: 574)

### 3.1.2.4 Hyponymy

Several technical terms have been developed to describe the relationship among classes and sub-classes among which are hyponymy and co-hyponymy. The term hyponymy is used when a lexical item which represents a class of thing is followed by a sub-class or vice versa in which the sub-class is succeeded by the superclass as shown in Example 7.

#### **Example 7:**

**You take over a main line like the Great Central and a few branch lines that run off from it, you electrify it, and then instead of running trains as they’re run at present as public vehicles you hire out small trains to individual drivers. (Halliday and Matthiessen, 2004:574)**

Example 7 presents an instance of hyponymy relation where the subclass “trains” is succeeded by the superordinate term “vehicles”. Example 8 is another relation of hyponymy where the superordinate term “literature” is followed by the lexical “Chaucer”.

### **Example 8:**

**And do you know anything about medieval literature; have you ever heard of any other kinds of literature in the medieval period besides Chaucer? (Halliday and Matthiessen, 2004:574)**

Example 8 shows that the term co-hyponymy is used to describe the relation between two lexical items of different classes which are at the same level of classification as in the following example.

### **Example 9:**

*Noah's wife and his sons' wives went to the fields to gather fruit and grain and vegetables. They would need plenty of food for themselves and the animals on the ark. (Halliday&Matthiessen, 2004:574)*

In Example 9, the words “*fruit*”, “*grain*” and “*vegetable*” are all co-hyponymy of the superordinate *food*. (Halliday and Matthiessen, 2004)

## **3.1.3 Extending Relations: Meronymy**

### **3.1.3.1 Meronymy**

A relation of meronymy is established when either a lexical item is presented as a whole followed by a lexical or a group of lexical items regarded as a part of that lexical or, when the sequence is reversed in which the part is succeeded by the whole. Example 10 expounds on how the relation is realized.

### **Example 10:**

**Elfrida had a beautiful little glass scent-bottle. She had used up all the scent long ago; but she often used to take the little stopper out.. (Halliday&Matthiessen, 2004 :576)**

In Example 10, the term “stopper” is part of the whole “bottle”, hence; a relation of meronymy is achieved.



A relation of co-meronymy is established when two or more lexical items are part of a whole. Consider the following example.

**Example 11:**

She knelt down and looked along the passage into the loveliest garden you ever saw. How she longed to get out of that dark hall, and wander about among those beds of bright flowers and those cool fountains,... (Halliday and Matthiessen, 2004 :576)

Example 11 shows that the two terms “flowers” and “fountains” are part of the “garden” and therefore, they are co-meronymy of “garden”.

The next section will explicate the schematic structure concept.

### **3.1.4 Schematic Structure**

The term “schematic structure” is simply used to refer to the chain of stages which are established as a result of our communication in any given genre. As Martin (1985b:251) suggests:

*“Schematic structure represents the positive contribution genre makes to a text: a way of getting from A to B in the way a given culture accomplishes whatever the genre in question is function to do in that culture”.*

Eggins (2004) elaborates the concept of schematic structure using a horoscope text as data to identify the overall stages that constitute the genre. She describes horoscope texts as involving the following stages:

- **General Outlook:** the astrologer in this stage gives a general statement of the period covered by the horoscope.
- **Uncontingent Predications:** general predications are made in this stage with regard to things that will happen in the immediate future.

- **Contingent Predications:** various advices are given in accordance with the readers' status.
- **Advise:** the astrologer in this stage gives advice and warnings.

The habitualization of any communicative task would result in making a series of moves or steps. These stages are described as **Schematic Structure**. Eggins also describes two essential concepts in analyzing the schematic structure of genres; **constituency** and **labeling**.

### 1. Constituency

Any given genre is built out of constituent stages. These constituent stages are used to describe the schematic structure of a genre. Generally, these constituent stages are the Beginning, the Middle and the End. However, this sort of labeling is deemed as static since it is well known that all genres have beginnings, middles and ends. The purpose of this study is to identify the constituent parts making up the whole, and simultaneously, expound on the way how the constituent parts are related to each other in building the whole genre. Therefore, the **functional labeling** approach is employed to describe the schematic structure of the genre.

### 2. Functional Labeling

Dividing the text according to its constituent parts entails certain criteria. The functional criterion, which divides the text into functional constituents, is the one to be employed in this study. This functional approach recognizes the stage only when a sentence or a group of sentences serve as a function connected to the totality of the genre. Hence, the purpose is to describe what the stage is doing in relation to the whole genre.

Eggins (2004) suggests that any genre comprises **obligatory** and **optional** schematic structure elements. She considers the obligatory schematic structure elements as a

prerequisite for recognizing any genre. On the other hand, optional elements are the ones that could be left out yet still have the same genre. The existence of optional elements would add an extension variation to the genre.

## **3.2 Methodology**

This section will delineate the research design of the study which includes the selection and description of the data, the coding system, and sample analysis.

### **3.2.1 Data Selection and Description**

The corpus of the current study is related to texts on *Islam and Science* and *Religion and Society*. This type of genre is mainly chosen due to the researcher's interest, background and familiarity with Islamic philosophical texts. Besides, a great deal of research within the domain of systemic functional linguistics have focused on the language of science, however, few research have been conducted on the special features of texts on science and religion.

The process of data selection began with scouring for data on *science and religion* and *society and religion* in articles, books and academic journals. A corpus of academic journals entitled 'Islam and Science' and 'Journal of Religion and Society' were selected for the analysis of this study. The journal 'Islam and Science' explores, from an Islamic perspective the philosophical and religious implications of research in the physical, biological, and social science. The journal also publishes articles that enhance our understanding of the Islamic intellectual tradition with a special emphasis on the Islamic scientific tradition. The journal is published twice a year (in summer and winter) by the Centre of Islam and Science (CIS) Canada ([www.cis-ca.org](http://www.cis-ca.org)). The Journal

“Religion and Society” is a cross-disciplinary, electronic journal published by the Rabbi Myer and Dorothy Kripke Center for the Study of Religion and Society at Creighton University. It promotes the study of religious groups and beliefs among the various peoples of the world, past and present, with emphasis on American religions and Western religious traditions. The academic journals are scanned for suitability, and four articles are selected for the analysis. The four articles are approximately of the same length, written by four different authors. Further details of the data are shown in Table 3.1

**Table 3.1 Description of Data Used in the Study**

No.	Title	Author	Publication year	Volume
1.	The Universe as a System: IbnSina’s Cosmology Revisited	Syamsuddin Arif	(Winter 2009)	Vol.7 No.2
2.	The Question of Cosmogenesis - the Cosmos as a Subject of Scientific Study	Seyyed Hossein Nasr	(Summer 2006)	Vol.4 No.1
3	Jihad and Terrorism an Alternative Explanation	M.Moniruzzaman	2008	Vol. 10
4	Fatwa and Violence in Indonesia	Luthfi Assyaukanie	2009	Vol. 11

Table 3.1 illustrates the title of the journals and their authors. As shown in the table, all the journals were published within the last five years.

### 3.2.2 Coding System of Data

Cohesive relations are concerned with semantics rather than structure. Thus, their existence is not only within sentences but across sentences as well. The aim of this study is to bring out the cohesive ties across sentences and not within sentences. This is because the cohesive relations within sentences are not noticeable owing to the strength of the grammatical structure of the sentence. The whole data therefore will be retyped and transcribed according to their sequences. Lexical items from quotations and Quranic verses will be excluded from the analysis as they are not from the writers' words. The system of coding is shown in Table 3.2

**Table 3.2 Illustration of Coding System for the Data**

No.	Coding	Examples
1	(S68/CNM/T2)	According to Ibn Sina, heavenly substances differ fundamentally from earthly things in many respects.
2	(S69/CNM/T2)	First of all, celestial things are simple in that they are not composite, and, second, they are made of a unique simple substance called aether (athir) which, unlike the four sublunary elements, is eternal and changeless in the sense that it is neither generated nor destructible (la yaqbal al-kawn wa al-fasad).

As shown in table 3.3 every sentence is given a unique code in attempt to avoid confusion during the phase of analysis. The sentences of every text are labeled according to the number of the sentence, sub-section and the number of text. Below more instances are given for clarification.

i) Code: **S1/GPC/T2**

**S1** refers to sentence 1

**GPC** refers to the sub-section (General Picture of the Cosmos)

**T2** refers to text 2

ii) Code: **S10/INT/T1**

**S10** refers to sentence 10

**INT** refers to the sub-section (Introduction)

**T1** refers to text 1

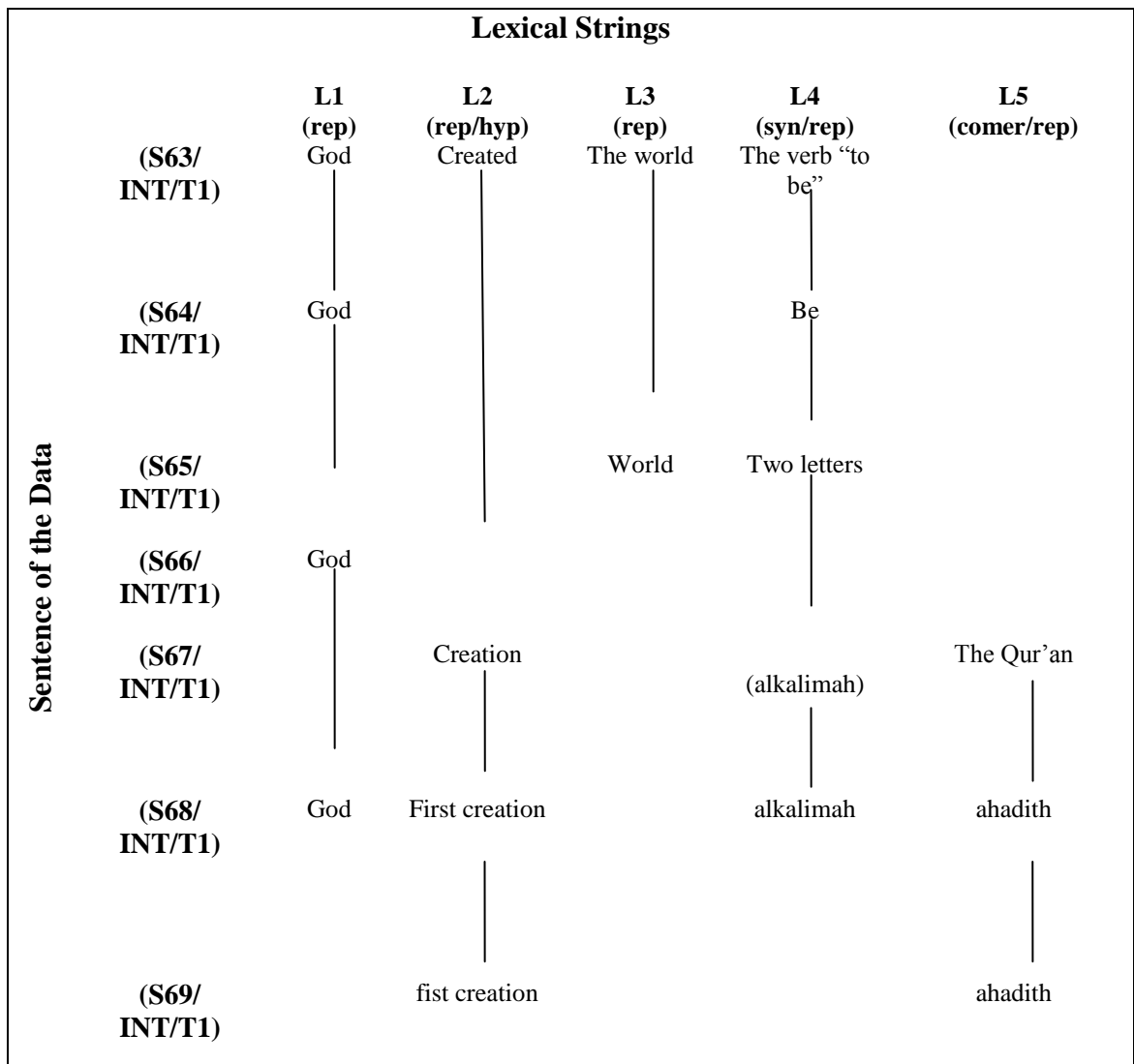
### **3.2.3 Analyzing Data for Lexical Cohesion**

All the lexical items which are semantically related are transcribed. The first phase is to identify the lexical items that have taxonomic relationship with other lexical items. In SFL traditions, these lexical items are written horizontally on a row from left to right. After that, the second sentence is examined to bring out the lexical items that can merely be recovered via the interpretation of an item from the proceeding sentence. This process of analysis is repeated throughout the whole text. A lexical item is connected with the immediate item by a relationship called a tie. These ties form a lexical string labeled L1 to Ln. To exemplify the process of analysis, a segment of the article “The Question of Cosmogenesis” is extracted from **S63** to **S69** to show the taxonomic analysis of lexical cohesion.

## Excerpt from The Question of Cosmogenesis / S63 to S69

(S63/ INT/T1) God has not only created the world but sustains and in reality re-creates it at every instant, not only through His knowledge but also through His Will, which is associated with the command form of the verb “to be” (kun). (S64/ INT/T1) As already mentioned, God said “Be”, and there was. (S65/ INT/T1) The whole universe, this world and the next, were brought into being by these two letters, k and n. (S66/ INT/T1) As the Persian poet Mahmud Shabistari says in praising God, *from k and n He brought forth the two worlds of being (kawnayn)*. (S67/ INT/T1) The Word by which all things were made is known in Islamic sources as al-Kalimah, which is also a name of the Qur’an that in a sense is the complement and in another the prototype of creation itself.

(S68/ INT/T1) Certain ahadith refer to the Kalimah as the first being created by God (awwalu ma khalaqa’Llah), while others refer to the Pen (al-Qalam), Light (al-Nur), Intellect (al-Aql), or Spirit (al-Ruh) as the first creation of God through which everything else was made. (S69/INT/T1) These ahadith all refer to the same reality which is at once word, Pen, Light, Intellect, and Spirit, each of these terms alluding symbolically to an aspect of that reality that was and is God’s first creation and also first instrument of creation.



### **Figure 3.2     The Stages of Analysis for Lexical Cohesion**

As presented in Figure 3.2, all the sentences were transcribed with different codes. In order to identify the lexical items that have a taxonomic relations with other lexical items, the lexical items “God”, “created”, “the world”, and “the verb to be” in S63 were placed horizontally on a row from left to right. Then, S64 were examined to find out the lexical items which their meanings can only be recovered through a relation with the lexical items in S63. In this example, the word “God” in S64 has a relation of repetition with the lexical item “God” in S63. Moreover, the lexical “Be” in S64 has a synonym with the lexical phrase “the verb to be” in S63. There is a semantic relation through S63, S64, S66 and S8. This semantic relation is called a tie. These ties form a string, L1. This process is followed to analyse lexical cohesion throughout the entire text.

#### **3.2.4 Analyzing Data for Schematic Structure**

This study will adopt the framework of Eggins (2004) in analyzing schematic structure. As mentioned earlier, the systemic functional approach is used to analyze the data. The stages of every article are outlined in a table that comprises three different columns. Column one mentions the stage number followed by column two which describes the function of the stage and eventually column three shows the span of the stage. To exemplify the process of analyzing the texts, a segment of the article “Jihad and Terrorism” is extracted to show how the stages are identified.



(S1/INT/T3) The contemporary international relations are beset with the phenomenon of “international terrorism” widely believed to be closely associated with the Islamic concept of jihad – holy war. (S2/INT/T3) This phenomenon has become a global concern of international and state security. (S3/INT/T3) Global, regional, or inter-state relations are being reshaped surrounding policies regarding international terrorism. (S4/INT/T3) The concept has increasingly gained a particularistic identity within Islam due to the multiplicity of terrorist activities around the world during the past few years carried out by civilian Islamic groups such as Al-Qaeda, allegedly in the name of Islamic jihad. (S5/INT/T3) The identical relationship between international terrorism and Islam generated a common belief, at least in the West, that anything Islamic deems to have terrorist or violent connection. (S6/INT/T3) The situation is further aggravated by the fact that these groups frequently legitimize their terrorist activities by the Islamic concept of jihad. (S7/INT/T3) As such the concept of jihad, a most widely misunderstood one, is now squarely equated with terrorism. (S8/INT/T3) Recent Islamic scholarship also tends either to avoid the usage of the concept jihad or is increasingly de-politicizing its traditional meaning. (S9/INT/T3) Similarly, Islamic political movements or parties in the Muslim countries are also consciously de-emphasizing its importance. (S10/INT/T3) Is jihad necessarily a terrorist dogma? (S11/INT/T3) What are its moral philosophies that inspire a “terrorist” agenda? (S12/INT/T3) The present understanding of international terrorism in relation with the concept of jihad requires a re-examination of the concept and its relevancy to the contemporary international system.

**Table 3.3 Schematic Structure of the Article**

Stage No.	Function of Stage	No. of Sentence
Stage 1	Giving background information	S1 to S9
Stage 2	Question-raising	S10 to S11
Stage 3	Identifying gap	S12

The schematic structure analysis of the article shows that it has 3 stages as follow:

#### **Stage1 Background information**

In this stage, the author begins the article by providing background information to the reader about the perception of the international community towards Jihad being always associated with terrorism and the reasons behind such misperception. Such stage is crucial to be placed at the begging of the article to put the reader in the context of the whole matter.

#### **Stage2 Question-raising**

In this stage, two questions were raised by the author to draw the attention of the reader.

Examples of the questions raised in this article:

- (S10/INT/T3)**Is Jihad necessarily a terrorist dogma?**
- (S11/INT/T3)**What are its moral philosophies that inspire a “terrorist” agenda?**

### Stage3 **Identifying gap**

Following the stage of raising the question, the author attempted to show that this issue has not been investigated by others. An example illustrating this stage is shown in the following sentence:

- (S12/INT/T3)**The present understanding of international terrorism in relation with the concept of jihad requires a re-examination of the concept and its relevancy to the contemporary international system.**

As seen above, the phrase “**requires a re-examination**” is an indication that the matter was not addressed and needs further investigation.

### **3.2.5 Contribution of Lexical Cohesion and Schematic Structure to the Meaning of Texts**

To illustrate how Lexical Cohesion and Schematic Structure contribute to the meaning of the texts, an excerpt is selected for the purpose analysis. As mentioned in Chapter 2 that a text is not merely a set of sentences that have no relation with each other. Rather, the text has a quality of unity. It is because of cohesion that these sentences stick together to function as a whole. One way of achieving this cohesion is through word relation. Research question 3 in this research is dedicated to illustrate the lexical chains found in the data. These lexical chains are likely to assist the reader to comprehend the meaning in a better way.

With regard to Schematic Structure contribution of meaning to the texts, an exhaustive analysis has been made in research question 2 on illustrating the various stages that every text has which eventually contribute to the overall meaning of the texts.

### **3.3 Chapter Summary**

In conclusion, this study employed two models from the Systemic Functional Linguistics for the analysis. The first model was an integrated framework for identifying the lexical cohesion across the texts proposed by Halliday and Hassan (1976), Halliday and Matthiessen's (2004), and Martin (1989 &1992). The second model used was the one developed by Eggins (2004) which was used to explore the underlying schematic structure in the texts. The next chapter will provide the findings of this study.

## **CHAPTER FOUR: FINDINGS AND DISCUSSIONS**

### **4.0 Introduction**

This study will present the findings and discussions with regard to the study on Lexical Cohesion and Schematic Structure in four academic articles on the topics: *Islam and Science* and *Religion and Society*. This study will use an integrated theoretical framework of lexical cohesion founded by Halliday and Hasan (1976), and elaborated by Halliday and Matthiessen's (2004), and Martin (1989 & 1992). It will also use the theoretical framework of schematic structure framework elaborated by Eggins (2004). This chapter is divided into four sections: section 4.1 on findings in relation to the results of lexical ties; section 4.2 on the results of the stages of schematic structure; section 4.3 on the contribution of lexical cohesion and schematic structure to the meaning of the texts and finally section 4.4 on the discussion of the findings.

The findings of the study will be presented in relation to the research questions introduced in chapter one and reiterated here:

- 1. What are the underlying Lexical Ties found in the texts?**
- 2. What are the underlying Schematic Structures in the texts?**

### **3. How do Lexical Cohesion and Schematic Structure contribute to the meaning of the texts?**

Section 4.1 will respond to question 1, Section 4.2 will answer question 2, Section 4.3 will answer question 3 and Section 4.4 will present a discussion of the major findings shown in the previous sections. Finally, section 4.5 will provide the chapter summary.

#### **4.1. Findings Related to Lexical Ties**

This section will present the findings related to question 1. Two academic articles on *Islam and Science* and two academic articles on *Religion and Society* were examined. For each sentence, elaboration and extending relations were determined. To attain this purpose, the study used an integrated theoretical framework of lexical cohesion by Halliday and Hasan (1976), and elaborated by Halliday and Matthiessen's (2004), and Martin (1989 & 1992). Section 4.1.1 through 4.1.5 will demonstrate how the various types of lexical ties are realized in the texts.

##### **4.1.1 Elaboration Relation: Repetition, Synonymy, Antonymy and Hyponymy**

The relation of elaboration includes repetition, synonymy and hyponymy. An elaboration for each type is provided.

###### **4.1.1.1 Repetition**

The findings of this study show that there are several ways for the lexical items to be cohesively tied through a relation of repetition. One way is when a lexical item or a lexical phrase is repeated identically as is shown in Example 1.

### **Example 1:**

(S11/INT/T1) It is the lowest level of reality which is encompassed, metaphorically speaking, by worlds immensely greater than it. (S12/INT/T1) And all of these worlds are in turn but as a dust-mote before the Divine Throne.

Example 1 shows that the second occurrence of the lexical item “**worlds**” in (S12) refers back to the first. In this instance, there is also the demonstrative “**these**” in (S12), indicating that the listener knows which “**worlds**” is intended. However, the existence of the demonstrative is not essential for lexical cohesion to be achieved. Lexical items could be cohesively tied with each other through a pure lexical relation. Example 2 below shows how the lexical item “**God**” in the two sentences is tied through only the lexical relation.

### **Example 2:**

(S21/INT/T1) Not only is God the Creator, but he is the only power who can create. (S24/INT/T1) moreover, within this order God creates what he wills, as is repeated so often in the Qur’an.

As inflectional variants belong to the same item, they are also deemed as one of the ways how a repetition relation is realized. An instance of inflectional type is shown in Example 3 below.

### **Example 3:**

(S55/GPC/T2) Along with Plato and Aristotle, Ibn Sina denies the existence of other universes apart from our own. (S56/GPC/T2) For him there cannot be more than one universe, and he adduces two arguments in support of this view.

The word “**universes**” in (S55) is cohesively tied with “**universe**” in (S56) through a relation of repetition. Both of these lexical are inflectional variants of the same lexeme “**universe**”. Tables 4.1 and 4.2 respectively illustrate further examples of repetition

found in the data, the identical repetition type and the inflectional variants type. The repetition examples are underlined.

**Table 4.1 Examples of Types of Identical Repetition**

No.	Coding	Examples
1	(S78/INT/T1)  (S79/INT/T1)	In several places the <u>Qur'an</u> asserts that the world....  But the <u>Qur'an</u> insists that time itself....
2	(S10/GPC/T2)  (S12/GPC/T2)	That the <u>earth</u> lies at its center.  Ibn Sina argues for the central position of the <u>earth</u> by means.....

**Table 4.2 Examples of Inflectional Variants Repetition**

No.	Types of repetition	Coding	Examples
1	Inflectional Variants	(S26/GPC/T2)  (S30/GPC/T2)	For how, he asks, can a thing be <u>forced</u> [to remain somewhere]....  ... it is pulled to every direction with the same <u>force</u> ....
2	Inflectional Variants	(S56/IMU/T2)  (S62/IMU/T2)	...and he adduces two <u>arguments</u> in support of this view.  ... Ibn Sin <u>argues</u> the earth of each...

#### 4.1.1.2 Synonymy

A synonymous relation is said to be achieved when a lexical item carries the same meaning as the preceding one. This relation of synonym is realized when the identity of the reference is explicitly identified. Example 4 shows how this relation is achieved.

#### **Example 4:**

(S22/INT/T1) He created the world through his will: He said “Be” (kun), and there was.

(S23/INT/T1)The divine word is the origin of the entire created order.

In Example 4, the lexical item in (S22) “**Be**” carries the same meaning of the lexical phrase “**the divine word**” in (S23), so the two lexical items are in a relation of synonymy. However, this lexical relation is not the only one; the identity of the lexical item is being specified through the use of the article “**the**” and the religious background obtained by the reader about Islam. Therefore, the lexis “**divine word**” is overtly distinct and the listener is able to recognize the intended meaning.

On the other hand, the referential relation is not always essential for the recovery of another lexical item of the synonymy type. Example 5 below illustrates how the lexical item could be retrieved via merely a lexical relation.

#### **Example 5:**

(S24/GPC/T2)That is to say, given its present natural position, the earth cannot have rectilinear motion; nor can it revolve about an axis at the center of the universe, because circular motion belongs only to celestial bodies.(S26/GPC/T2) For how, he asks, can a thing be forced [to remain somewhere] except when it is not in its natural place?

In (S24) the lexical item “**position**” is semantically related to “**place**” in (S26). Both lexical items have similarity in meaning; hence, they are tied through merely a relation of synonymy. Tables 4.3 and 4.4 respectively show further examples of synonymy from the data, the synonymy with identity of reference and without reference. The synonymy examples are underlined.



**Table 4.3 Examples of Types of Synonymy with Identity of Reference**

No.	Coding	Examples
1	(S99/IMV/T1)  (S100/IMV/T1)	...the sole giver of existence to <u>the cosmos</u> .  <u>The universe</u> or the created order or nature do not possess the power of creating....
2	(S146/CSS/T1)  (S155/CSS/T1)	<u>The Qur'an</u> asserts that God taught the "names" of all...  ... the message and meaning of those other ayat contained in <u>the revealed book</u> .

**Table 4.4 Examples of Types of Synonymy without Identity of Reference**

No.	Coding	Examples
1	(S6/INT/T1)  (S12/INT/T1)	..is but a <u>speck of dust</u> before the divine reality..  And all of these worlds are in turn but as a <u>dust-mote</u> before the divine throne.
2	(S24/GPC/T2)  (S26/GPC/T2)	That is to say, given its present <u>natural position</u> , the earth...  .. except when it is not in its <u>natural place</u> .

#### 4.1.1.3 Antonymy

The antonymy relation, contrary to synonymy, is realized when a lexical item has an opposite meaning with the preceded lexical item. Example 6 illustrates how this relation occurs.

##### **Example 6:**

(S68/CNM/T2) First of All, celestial things are simple in that they are...(S69/CNM/T2) This is because generation and destruction apply only to composites...

In (S68/CNM/T2), the two lexical items “**simple**” in (S68) and “**composites**” in (S69) have an opposite meaning. Hence, they are cohesively tied in a relation of antonymy. Table 4.5 shows more examples of antonymy. The antonymy relations are underlined.

**Table 4.5 Examples of Types of Antonymy**

No.	Coding	Examples
1	(S27/INT/T1) (S28/INT/T1)	He can also <u>destroy</u> the world and create a new one.  As the creator, God <u>established</u> law and order that a man cannot alter...
2	(S68/CNM/T2) (S69/CNM/T2)	...the four sublunary elements, eternal and <u>changeless</u> in ...  ...but also to other kinds of <u>change</u> , such as ...

### 4.1.2 Hyponymy

This kind of relation includes both hyponymy and co-hyponymy relations.

#### 4.1.2.1 Hyponymy

Unlike repetition and synonymy relations which depend on identity specification, hyponymy relation is based on classification. The data has favored many instances of hyponymy. A relation of hyponymy is obtained when a lexical item is a subclass of another item as illustrated in the following example.

#### **Example 7:**

(S1/GPG/T2) .... One within the other, from the lowest sphere of the moon to the outermost starless sphere.(S3/GPG/T2)On this model, each of the seven known “wandering stars” or planets...

The lexical item “**planets**” in (S3) is a general term which represents all the seven planets in the universe. The specific term “**the moon**” in (S1), which is considered as one kind of the seven planets, is in a hyponymy relation with “**planets**”.

Another way of how hyponymy is realized is when two lexical items are subclasses of the same class. This kind of relation is described as co-hyponymy. Example (8) will illustrate the relation.

### **Example 8:**

(S13/GPC/T2) For him as for Aristotle, any motion of natural bodies is either simple or composite, natural or unnatural. (S14/GPC/T2) simple motion, which belongs to simple bodies, is either rectilinear or circular. (S15/GPC/T2) simple rectilinear motion is either motion away from the centre, motion toward the centre, or motion about the centre. (S16/GPC/T2) Motion away from the centre toward the cosmic circumference, termed upward motion, is natural to light bodies, whereas motion toward the centre, called downward motion, is natural to heavy bodies. (S17/GPC/T2) the motion of a body is said to be natural.....

In example (8) an instance of co-hyponymy is established where the lexical items “**natural bodies**” in (S13), “**simple bodies**” in (S14) and “**light or heavy bodies**” in (S16) are all subclasses of the same class “**a body**” in (S17). Tables 4.6 and 4.7 respectively show various examples of hyponymy. The hyponymy relations are underlined.

**Table 4.6 Examples of Types of Hyponymy**

No.	Coding	Examples
1	(S46/INT/T1)	Therefore, there could not be a time before <u>creation</u> and creation could not have a beginning in time.
	(S47/INT/T1)	This is basically the argument of Islamic philosophers against the theologians concerning <u>the creation of the world</u> .
2	(S104/INT/T1)	In fact the <u>big bang theory</u> is already being challenged by some modern cosmologists.
	(S112/INT/T1)	Today one <u>theory</u> after another is posited to explain the origin of the cosmos.....

**Table 4.7 Examples of Types of Co-hyponymy**

No.	Coding	Examples
1	(S29/GPC/T2)	He also rejects the idea that the earth at rest because it is like <u>a cylinder in shape</u> , ....
	(S30/GPC/T2)	Equally unacceptable to him is the idea that the earth has <u>a ball-like shape</u> and that .....
2	(S89/IPC/T1)	The states and levels of being and also intellect that are metaphysical and independent of astronomy were thereby correlated with <u>Ptolemaic scheme</u> as modified by Islamic astronomers.
	(S92/IPC/T1)	Ibn Rushd preserved the intellects of the spheres while rejecting their solus, while Tusi re-established the full <u>Avicenna scheme</u> .

#### **4.1.3 Extending Relation**

This kind of relation includes meronymy and co-meronymy relations. Section 4.1.3 will provide an explanation of how these two relations are realized in the data.

##### **4.1.3.1 Meronymy**

The meronymy relation is achieved when one lexical item is made up of another one. The data has favored several examples. Example 9 shows how this relation occurs.

##### **Example 9**

(S15/INT/T1) The Qur'an repeats in many verses that God is the creator of the world. (S18/INT/T1) Moreover, the Qur'an emphasizes that God created not only the heavens and the earth but everything within them.

The lexical phrase “**the heavens and the earth**” in (S18), is part of the lexical item “**the world**”. Hence; the phrase “**the heavens and the earth**” is a meronymy of “**the world**”.

A relation of co-meronymy is established when two lexical items are part of a whole. Example 10 below shows how this type of relation is identified.

### **Example 10**

(S9/INT/T1) This is the implication of many aha'dith concerning the angels, such as the one concerning the angel of death.... (S13/INT/T1) The Qur'an affirms over and over again that the world was created and didn't come into being by itself.

The two lexical items “**Aha'dith**” in (S9) and “**The Qur'an**” in (S13) are the two most crucial resources in Islam; hence, they are part of it. As a result, the two lexical items are in a relation of co-meronymy.

Tables 4.8 and 4.9 respectively show several examples of meronymy and co-meronymy taken from the data. The meronymy and comeronymy relations are underlined.

**Table 4.8 Examples of Types of Meronymy**

No.	Coding	Example
1.	<b>S57/IMU/T2</b>  <b>S62/IMU/T2</b>	The <u>body</u> would consequently be subject to contrary natural motions (simultaneously towards and away from the centre, as some would move downward while others upward).  That is to say, if there were another universe, its elements would be one and the same as those in our universe; and since all <u>elements</u> are essentially the same every-where...
2.	<b>S37/ INT/T1</b>  <b>S39/ INT/T1</b>	The main issue emphasized by <u>Muslims thinkers</u> , which is also of importance to the present discussion, concerns creation from nothing (ex nihilo, min al-adam)....  The importance of the subject and the very extensive debates carried out about it in <u>various schools of Islamic thought</u> must therefore be mentioned even if briefly.

**Table 4.9 Examples of Types of Comeronymy**

No.	Coding	Example
1.	<b>S131/ IMV/T1</b>	In the question of cosmogenesis as well as the history, destiny, and end of the cosmos, the <u>Islamic perspective</u> possesses its own definite teaching based upon the Qur'an and Hadith.
	<b>S133/ IMV/T1</b>	...the <u>Islamic philosophy of science</u> stands in stark opposition in the basic questions of the origin and end of the cosmos....

#### 4.1.4 Quantitative Results for the Analysis of Lexical Items

This section is a comparison of the four articles for their lexical taxonomic analysis. Tables 4.10 to 4.12 respectively display the overall distribution of the relations of lexical strings. Table 4.13 shows a summary of the frequency of the occurrences of lexical relations in the four articles.

**Table 4.10: Overall Distributions of Lexical Relations in Text 1**

<b>Division of Text</b> <b>Name of Relation</b>	<b>1.1</b>	<b>1.2</b>	<b>1.3</b>	<b>1.4</b>	<b>%</b>
Repetition	1	4	5	6	66.6
Hyponymy	2	2	-	-	16.6
Cohyponymy	-	-	-	-	0
Synonymy	1	-	-	-	4.16
Antonymy	-	-	-	-	0
Meronymy	1	2	-	-	12.5
Comeronymy	-	-	-	-	0
<b>Total Number of Relation</b>	<b>5</b>	<b>8</b>	<b>5</b>	<b>6</b>	<b>%100</b>

- **Calculation of Distributions of Lexical Relations formula of the Table:**

$$\frac{\text{Number of strings X 100}}{\text{Total number of simple relation}} = \%$$

Here is an example for the repetition relation:

$$\frac{16 \quad X \quad 100}{24} = 66 \%$$

**Table 4.11: Overall Distributions of Lexical Relations in Text 2**

<b>Division of Text</b> <b>Name of Relation</b>	<b>1.1</b>	<b>1.2</b>	<b>1.3</b>	<b>1.4</b>	<b>%</b>
Repetition	7	9	3	2	70
Hyponymy	-	-	1	-	3.3
Cohyponymy	-	-	-	1	3.3
Synonymy	1	-	2	-	10
Antonymy	-	-	2	-	6.6
Meronymy	-	-	-	1	3.3
Comeronymy	-	-	-	1	3.3
<b>Total Number of Relation</b>	8	9	8	5	%100

**Table 4.12: Overall Distributions of Lexical Relations in Text 3**

<b>Division of Text</b> <b>Name of Relation</b>	<b>1.1</b>	<b>1.2</b>	<b>1.3</b>	<b>1.4</b>	<b>%</b>
Repetition	7	5	4	5	63.6
Hyponymy	-	1	1	-	6.0
Cohyponymy	1	-	-	1	6.0
Synonymy	0	0	1	0	3.0
Antonymy	0	-	2	1	9.0
Meronymy	2	-	-	1	9.0
Comeronymy	0	1	-	0	3.0
<b>Total Number of Relation</b>	10	7	8	8	%100

**Table 4.13: Overall Distributions of Lexical Relations in Text 4**

<b>Division of Text</b> <b>Name of Relation</b>	<b>1.1</b>	<b>1.2</b>	<b>1.3</b>	<b>1.4</b>	<b>%</b>
Repetition	5	5	3	8	50
Hyponymy	1	-	1	1	7.1
Cohyponymy	-	3	-	1	9.5
Synonymy	1	2	0	-	7.1
Antonymy	3	-	1	-	9.5
Meronymy	2	-	1	1	9.5
Comeronymy	-	1	1	1	7.1
<b>Total Number of Relation</b>	12	11	7	12	%100

The occurrence of repetition relation is significant in all the four articles. The repetition relation in the article on “The Universe as a System” accounts for 70 % of the total number of strings and 66.6 % for the article on “The Question of Cosmogenesis”. The repetition relation in the article “Jihad and Terrorism” accounts for 63.6 % while the article “Fatwa and Violence in Indonesia” accounts for 50 % of the total relations. It is apparent from this comparison that repetition is the dominant type of cohesion in the four articles. This result is not a surprise; in fact, it has been corroborated by a number of researchers. According to Reynolds (2001) repetition is the essential way of obviously manifesting cohesion in a text. Hassan (1989) mentions that repetition being the most direct means to create a tie has the strongest effect in forming a texture. Srinivas (1996, 2004) and Supramaniam (2004) also found that repetition is the predominant lexical relation in creating cohesion. The significance of repetition and its function in English discourse is beyond the scope of this study and has been addressed by several researches such as Hoey (1991) and Krisztina Károly (2002).

#### **4.2 Findings Related to Schematic Structure for the Four Articles**

This section will answer the second question of this research which is “what **are the underlying schematic structures of the texts?**” To attain this purpose, the four articles namely “The Question of Cosmogenesis”, “The Universe as a System”, “Jihad and Terrorism” and “Fatwa and Violence in Indonesia” are analyzed to investigate how they are structured. The findings show that all the four articles were found to have the stage of “**Introduction**” and “**Conclusion**” while they differ in the other stages. The four articles did not follow a specific schematic structure. Tables 4.15 to 4.18 will



illustrate the schematic structure of the four articles. The tables show the beginning, the end, and description of every stage in relation to the whole text.

#### 4.2.1 Schematic Structure of Text 1

This article argues that in Islam, the cosmos was created by God and did not come to existence by itself as in Western belief. It also mentions the importance of studying the cosmos. **Table 4.14** below outlines the major themes of this text.

**Table 4.14 Outline of Text 1**

Span of text	Description
S1 to S5	This stage shows the Islamic thought towards the study of the origin of the cosmos being an important religious issue which should depend on Qur'an as a frame of reference in its interpretation. This view is opposed with modern western scientific thought which consider cosmogenesis as an extrapolation of the natural science.
S6 to S12	In this stage, the writer describes the physical part of the cosmos in comparison with other worlds immensely greater than it.
S13 to S20	The writer in this stage mentions the fact that the world is created by God and did not come into existence by itself. Several verses indicate that the creation of duality of gender, heavens, earth and everything within them are all signs of the creator.
S21 to S27	In this section God is being described as the only power that can create, bestow upon things their nature and destroy the entire world through the divine word.
S22 to S32	God also established laws which govern the universe and only him who has knowledge of everything in the universe.
S33 to S42	In this stage, an illustration is made on the meaning of creation and the various terms made by the commentators based on Quran on the meaning of creation as well as the meaning of creation from nothing.
S43 to S51	This part presents the argument of Islamic philosophers regarding the creation of the world.
S52 to S62	This section shows the debate among several views of Islamic schools with regard to the creation of the world.
S63 to S69	This stage focuses on God as the only sustainer of this world through His Will. Further, it discussed which the first creation of God is.
S70 to S83	This stage mentioned that there are creations other than the physical part of the cosmos such as the world of archangelic and angelic. Moreover, the measurement of the worlds is not applicable to the physical world.

Table 4.14, Continued

S84 to S86	This stage concludes all the previous arguments including the Islamic perspective towards the genesis, creation and end of the world.
S87 to S97	This stage shows the significant contribution to the development of science via the cosmological scheme proposed by Al-Farabi and Ibn Sina. It also reveals how the Islamic scheme is profound in comparison with western scheme.
S98 to S102	This stage outlines briefly the contrast between Islamic view and modern cosmologists regarding the origin, governance and end of the cosmos.
S103 to S117	This sub-stage covers the argument of the big bang theory between Islam and western.
S118 to S122	This sub-stage focuses on the speculation of the west about the end of the universe and its counterpart argument by Islam.
S123 to 130	This sub-stage discusses the laws governing the world and whether they are independent or run by God.
S131 to S133	This sub-stage concludes the argument between Islamic perspective based on Quran and Sunnah and modern science with regard to the genesis, destiny and end of the cosmos.
S134 to S160	In this stage, an emphasis is made by the Qur'an on the importance of studying the cosmos for the cosmos is intelligible. God has given man the intelligence to know the truth. The Qur'an asserts on the importance of nature to be a subject of study provided being seen as facts or signs for the omniscience and omnipotence of God.
S161 to S175	This stage concludes the tow opposite arguments of Islam and modern science with regard studying the cosmos. Modern science has always considered the nature as an independent domain by itself in which the creator was cut off from his creator. The Islamic point of view, however; has order man to study nature not only as a fact. Islam rejects the idea of studying the cosmos in forgetfulness of God; however, it reveals the wisdom of God.

**Table 4.15: Schematic Structure of Text 1**

Stage No.	Function of Stage	No. Sentence
<b>Stage 1</b>	Establishing the Importance of the topic	S1 to S3
<b>Stage 2</b>	Stating the main theme	S4 to S5
<b>Stage 3</b>	Defining a term	S6 to S12
<b>Stage 4</b>	Reasoning	S13 to S32
<b>Stage 5</b>	Arguing& explanation	S33 to S97
<b>Stage 6</b>	Comparison and Contrast	S98 to S133
<b>Stage 7</b>	Explanation	S134 to S160
<b>Stage 8</b>	Conclusion	S161 to S175

As shown in table 4.15, **Text 1** is made up of **8 stages** as follow:

### **Stage 1 Establishing the importance of the topic**

The article begins by explaining how important the issue of the cosmos in the past and nowadays. The following sentences extracted from the article show examples of this stage:

- (S1/INT/T1) ... there is no school of the philosophy of science- whether ancient or modern, Eastern or Western -- that has not dealt in one way or another with this problem.
- (S3/ INT/T1) ...the Nobel Qur'an insists over and over upon the ultimate significance of the question of the genesis of the cosmos...

### **Stage2 Stating the main theme**

In this stage, the author mentions the main argument of the entire text which is the western view towards the cosmogenesis being attributed to science and physical order and its counterpart Islamic view which always regard cosmology as a religious matter.

### **Stage3 Defining a term**

This stage reveals how the author has attempted at early stages of this article to propose a definition from an Islamic perspective about the cosmos. The author uses expressions like “the cosmos is ...” and “the physical part of the cosmos.”

- (S6/ INT/T1) Islam insists that the cosmos, no matter how vast quantitatively, is but a speck of dust before the Divine Reality....
- (S10/ INT/T1) The physical part of the cosmos that is the subject of study by natural sciences has a beginning and an end.

### **Stage 4 Reasoning**

In this stage, the author affirms the creation of the world and God is the creator, power, origin and end of this world. The author reasoned his claim by several verses from the Holy Quran.

### **Stage 5 Arguing & explanation**

In this stage, the author is discussing some of God’s names such as the Creator. He argues that God is the only creator. Moreover, he explains what creation is from an Islamic perspective.

- (S44/ INT/T1) If the world were created at a particular moment before which it did not exist, then either God was not al-Khaliq before that moment, which would imply a change in the Divine Nature, a thesis that Islam could not accept, or one would have to accept that since God is al-khaliq, he must always create and therefore there must have always been a creation.
- (S75/ INT/T1) Creation in the Islamic context means more than the creation of the physical world....

## **Stage 6 Comparison and contrast**

In this stage, the author is comparing between the Islamic view and western view about the big bang theory and end of the world. Expressions like “in **contrast**”, “**different**”, “**despite the fact..**” and “**however**” are used.

- (S101/ IMV/T1) God alone is giver of existence and of forms.
- (S102/ IMV/T1) In contrast, modern cosmologies remain of necessity uncertain as to the origin and end of the cosmos...

## **Stage 7 Explanation**

The author in this stage explicates how the cosmos can be a subject of study provided this study should not be separated from the higher order.

## **Stage 8 Conclusion**

The author in this stage divides the concluding argument in two main parts. The first one concludes the argument of modern science and in the other section summarizes the counterpart view of Islam with regard to the cosmos.

### **4.2.2 Schematic Structure of Text 2**

This text investigates Ibn Sina’s views on cosmology as well as the analysis and arguments related to his theories. Table 4.16 outlines the salient topics that have been discussed in this text.

**Table 4.16: Outline of Text 2**

Span of text	Description
S1 to S5	This stage is an introduction for Ibn Sina's views which based on Aristotle's cosmology and Ptolemaic astronomy. The principle view is that the universe consists of nine concentric spheres and they share the same center which is the earth. Each of the wandering stars or planets are lined to eight solid spheres. The ninth sphere, which is starless, vindicates the motion of the heaven. However, the motion of the other planets is due to the precession of the equinoctial points. All these spheres are said to be governed by intelligence and a soul.
S6 to S19	In this stage, an argument has been made on the potential for the universe to have a centre. Ibn Sina, based on Aristotle, makes a logical argument in which he expounded on the types of motions for bodies related to heavenly sphere and sub-lunar elements. Moreover, he explained the definition of natural place.
S20 to S37	In this stage, Ibn Sina argues for the stationary and central position of earth in universe by nature. For him, as the earth being the heaviest element of all, it should move naturally toward the centre. Ibn Sina refutes several arguments claiming that earth is forced to stay at the center. For instance, the theory that earth floats on water and does not fall down. Ibn Sina argued that what supports the water then.
S38 to S54	This stage discusses the third argument of Ibn Sina which states the universe is finite in extent and spherical in shape, having the starless sphere as its circumference and the earth as its center. For Ibn Sina, the sphere is the most suitable shape for circular motion, which by revolving around itself can move within its limit without changing its place. Ibn Sina rejected the idea of infiniteness of sphere for infinite body is logically impossible. He also believed that not only the cosmos is spherical in shape; the earth is considered as having a ball-like shape, and he justifies the sphericity of earth by the crescent-like and the change in sky when we move a short distance.
S55 to S60	Assuming the existence of other universes means that any given body like water would have many natural places. This body would have contrary natural motions.
S61 to S63	The existence of many universes entails more than one center which is impossible for Ibn Sina.
S64 to S66	This part concludes the above mentioned arguments.
S67 to S81	In this stage, an elaboration has been made on the nature of heavenly substances which are different from earthly things. Ibn Sina mentioned that celestial bodies are simple, and they are made of simple substance called aether which differs from the four sublunary elements in the sense that this simple element is not generated or destructible. Ibn Sina adds that this simple celestial substance moves only in a circular motion. This substance has no inclination for rectilinear motions and it has no contrary form and unchanged properties.
S82 to S149	This stage is an explanation for the theory of celestial motion. Ibn Sina rejects Aristotle's theory and adopted the simplified version of Alexander of Aphrodisias in which nine spheres is found. Ibn Sina kept on the rest of Aristotle's views regarding the so-called: prime mover. Another crucial theory which is adopted by Aristotle and Ibn Sina is the general principle in which everything is moved by some agent. This assumes that nothing is self-moved. Ibn Sina elaborated further on the reason why circular motion of celestial bodies cannot be natural, however; he mentioned that circular motion is the most suitable for celestial bodies. Moreover, Ibn Sina states that a great similarity is found between the celestial and human souls in inclination.

Table 4.16, Continued

S150 to S159	In this stage, the author concludes all the arguments by giving a brief description for all the theories mentioned in the article.
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**Table 4.17: Schematic Structure of Text 2**

No. of Stage	Function of Stage	No. of Sentence
<b>Stage 1</b>	Description of Ibn Sina's view of the universe	S1 to S5
<b>Stage2</b>	Elaborating the model	S6 to S54
<b>Stage 3</b>	Ibn Sina's argument of the Impossibility of many universes	S55 to S66
<b>Stage 4</b>	Explaining Ibn Sina's view of celestial motion and nature	S67 to S150
<b>Stage5</b>	Conclusion	S151 to S159

As shown in table 4.17, **Text 2** is made up of **5 stages** as follow:

### **Stage 1 Description of Ibn sina's view of the universe**

The author initiates this text by projecting an overview for the general view of Ibn Sina about the universe. Below are some of the expressions used in this stage:

- (S2/GPC/T2) These spheres are thought to be concentric....
- (S4/GPC/T2) There is a ninth, outermost sphere....

This stage shows how the author is giving an overview of Ibn Sina model via employing simple structure sentences. Most of the sentences of this stage are initiated with “there is/are” or the pattern S+V.

### **Stage 2 Elaborating the model**

In this stage, a thorough explanation has been made on the assumptions that Ibn Sina's model depends on. This stage favors words like (argue, reasonable, meant). Below are some of the examples extracted from the text.

- (S12/GPC/T2) Ibn Sina argues for the central position of the earth by means...
- (S20/GPC/T2) given all these principles, it is reasonable for Ibn Sina to conclude that....
- (S25/GPC/T2) Interestingly, Ibn Sina discards other arguments for the geocentric thesis on the grounds....

### **Stage 3 Ibn Sina's argument of the impossibility of many universes**

This stage is used to present another argument of Ibn Sina. The stage was commenced by stating the view and then supported by two arguments. The following sentences elaborate the sequence of this stage.

- (S55/IMU/T2) Along with Plato and Aristotle, Ibn Sina denies the existence of other universes apart from our own. (S56/IMU/T2) For him there cannot be more than one universe, and he adduces two arguments in support of this view.
- (S57/IMU/T2) First, he says, if there were many universes....
- (S61/IMU/T2) Secondly, if there were many universes, then there would be more than one center.

As shown, the sentence (S55) is in the simple present tense as the author is attempting to state the opinion of Ibn Sina. In (S56), the author mentions that two arguments are to be discussed in support of Ibn Sina's opinion.

### **Stage 4 Explaining Ibn Sina's view of celestial motion and nature**

This stage of the article elaborates on the view of celestial motion and nature based on Ibn Sina's view. This stage is commenced by discussing Ibn Sina's nature of heaven as in the following sentence:

- (S67/CNM/T2) Before dealing with Ibn Sina's theory of celestial motions, it is worth discussing his views on the nature of heavens.

Following this discussion, the author shifts to the core of this stage which is explaining about the nature and motion of celestial bodies as in the following sentences.

- (S82/CNM/T2) Let us now turn to Ibn Sina theory of celestial motions.

### **Stage 5 Conclusion**

This stage wraps up the entire article in which the author summarizes all the arguments which have been elaborated in details.



### 4.2.3 Schematic Structure of Text 3

This article argues the stereotype of Jihad being always associated with terrorism. Jihad is not merely a war rather it can be exploited in human and social welfare. **Table 4.18** outlines the major ideas of the text.

**Table 4.18: Outline of Text 3**

Span of text	Description
S1 to S12	This stage introduces the article by viewing the concept of “jihad” and how it gained the attention of the international world as well as the misunderstanding of the concept in relation to the terrorist activities carried out in the past few years around the world.
S13 to S26	This stage presents the aim of this article which is the analysis of Jihad concept being always perceived negatively as well as providing several views of Jihad via a number of arguments.
S27 to S43	This stage illuminates the common understanding of Jihad by many as an Islamic war against non-believers. It also mentions that this concept is not recent and it goes back to the 11 <sup>th</sup> and 12 <sup>th</sup> century. It also shows that Jihad is not mainly focusing of killing rather it has a universal human philosophy.
S44 to S59	This stage discusses the root and meaning of Jihad as well as the interpretation of the term on the individual level and political level.
S60 to 70	This sub-stage discusses the idea that though Qur’an refers to Jihad, the concept was outlined comprehensively during the eighth and ninth century. Moreover, a classification of jihad was shown namely, individual obligation and collective o obligation.
S71 to S73	In this part, the author is nullifying the belief that jihad is merely a declaration of war; rather it is a complete military science that includes other things.
S74 to S80	A clarification is made in this section regarding the profound meaning of Jihad and it is only referred to when there is a threat to the mission of Muslim which is propagating Islam to every nation.
S81 to S96	This sub-stage elaborates on the usage of the term Jihad and what does it mean. Moreover, it justifies the reason behind using the term qital instead of jihad.
S97 to S115	This part is illuminating the concept of Jihad being offensive or defensive. Some scholars think that it is offensive while other believe the opposite.
S116 to S119	This section wraps up the argument of this stage by stating that Jihad can be viewed as less militant, terrorist and offensive and more human and universal.
S120 to S156	This stage discusses the interpretation of Jihad with relation to the universal principles of relations between Muslim and non-Muslim states.
S157 to S159	Jihad with its contemporary interpretation can be used to fight against many of the global crises. Such possibility is outlined below.

Table 4.18, Continued

S160 to S170	This sub-stage discuss the global problems facing the world such as the depletion of natural resources and ozone layer, melting of the polar ice and flooding. Likewise, Islam calls upon Muslims to refrain from wastage and excessive use of natural resources. Thus, such moral regimes can be taken as guiding principles of global environmental Jihad.
S171 to S183	This section shows that Islam is as the same as the international regimes in perceiving human rights, thus, humanist jihad can be of use in protecting human rights.
S184 to S204	This section argues that Islam is against all acts of violence. As every society is subject to crimes, violence and corruption and thus Islamic jihad is designed to combat all those anti-social elements and maintain peace.
S205 to S210	This stage concludes the entire article.

**Table 4.19: Schematic Structure of Text 3**

Stage No.	Function of Stage	No. of Sentence
<b>Stage 1</b>	Giving background information	S1 to S9
<b>Stage 2</b>	Question-raising	S10 to S11
<b>Stage 3</b>	Identifying gap	S12
<b>Stage 4</b>	Aim of article	S13 to S22
<b>Stage 5</b>	The article structure	S23 to S26
<b>Stage 6</b>	Defining a term	S27 to S59
<b>Stage 7</b>	Argument 1,2 &3	S60 to S240
<b>Stage 8</b>	Conclusion	S205 to S210

As shown in table 4.19, it was found out that **8 stages** are making up **Text 3**.

### **Stage1 Background information**

In this stage, the author begins the article by providing background information to the reader about the perception of the international community towards Jihad being always associated with terrorism and the reasons behind such misperception. Such stage is crucial to be placed at the begging of the article to put the reader in the context of the whole matter.

## Stage2 Question-raising

In this stage, two questions are raised by the author to draw the attention of the reader.

Examples of the questions raised in this article are as follows:

- (S10/INT/T3) Is Jihad necessarily a terrorist dogma?
- (S11/INT/T3) What are its moral philosophies that inspire a “terrorist” agenda?

## Stage3 Identifying gap

Following the stage of raising the question, the author attempted to show that this issue has not being investigated by others. Example of this stage from the article is shown in the following sentence:

- (S12/INT/T3) The present understanding of international terrorism in relation with the concept of jihad requires a re-examination of the concept and its relevancy to the contemporary international system.

As seen, the phrase “**requires a re-examination**” is an indication that the matter is not being addressed and needs further investigation.

## Stage4 Aim of article

After identifying the gap of the article, the author states clearly the purpose of this article. The following sentence shows the aim of the text:

- (S13/INT/T3) The aim of this article is to analyze the concept of jihad and to offer an alternative explanation of it as understood in Islam.

## Stag5 The article structure

The author in this stage outlines the organization of the article. The following extract explicates this stage:

- (S23/INT/T3) This article presents these alternative views of jihad through a number of arguments. (S24/INT/T3) First, the concept of jihad contains a universal humanistic philosophy that is far more important than its outer meaning of holy war. (S25/INT/T3) Second, the concept of jihad has emerged from the classical legalistic confinement of the past into a universal Islamic foreign policy tool in the modern Islamic discourse. (S26/INT/T3) And finally, the humane

aspect of the concept has the potential to act as an international regime at the systemic level to fight a number of global threats.

The phrase “this article presents” associated with the phrase “a number of arguments” indicate how the author is organizing the rest of the article. Furthermore, the author lists the three main arguments that the article will focus on by using the ordinal numbers (First, second ...).

### **Stage6 Defining a term**

In this stage, the author defines the term “jihad” and where this term came from. The following sentences extracted from the text illustrate the defining stage:

(S27/TPP/T3) Jihad is a concept that is understood today as equivalent to terrorism.

(S38/TPP/T3) From the 1990s onward, jihad became internationally known as Islamic terrorism....

(S44/TMJ/T3) Jihad is a transliteration of an Arabic word.

The words “is **understood**”, “**known as**” **transliteration**” are evidences that the author is attempting to present a vivid explanation of Jihad.

### **Stage7 Argument 1, 2&3**

The author mentions in the stage of the structure that a number of arguments will be addressed. This stage discusses the arguments of the text. Some of these arguments are shown in the following examples:

### **Stage8 Conclusion**

In this stage, the author summarizes the entire text in the conclusion through presenting the misconception of Jihad and the reason behind such misconception, followed by explaining the real meaning of *Jihad* from the author perception. The following sentences illustrate the steps:

- (S205/CON/T3) Jihad has become a misunderstood concept today due to deviant use of it by deviant Islamic groups.
- (S206/CON/T3) Jihad contains a universal humane philosophy.....
- (S207/CON/T3) Jihad is the manifestation of the individual.....
- (S210/CON/T3) Jihad can be understood and used in a positive.....

As shown in the previous sentences, the phrase “**has become a misunderstood concept**” indicates the common currency of perceiving this concept. The author vindicates this misunderstanding by using the phrase “due to” followed by the reason. In the successive sentences, an attempt is made to present the alternative meanings of Jihad believed by the author via using the underlined expressions, “**contains**”, “**is the manifestation**” and “**can be understood and used**”.

#### 4.2.4 Schematic Structure of Text 4

Text 4 argues the misleading conception that there is no connection between *fatwa* and intolerant actions. The author selectes Indonesia as a case study for the text. Table 4.120 outlines the prominent arguments in this text.

**Table 4.20: Outline of Text 4**

Span of text	Description
S1 to S16	This stage discusses the relationship between fatwa and violence and why this issue was not addressed properly followed by a vindication on why Indonesia is opted as a case study. Finally, the writer presents the structure of this paper and the majors sections that will be dealt with in this study.
S17 to S34	This sub-stage defines the term ‘fatwa’ and explains how the perception toward fatwa was historically changing since the early days of Islam.
S35 to S46	This sub-stage focuses on the issues that fatwa deal with. Fatwa was only concerned about legal issues, however, by the early of the seventh century, fatwa dealt with theological issues. Distinction was difficult to be made between legal and theological issues; Ijtihad as a result was employed.
S47 to S63	This sub-stage mentions the stage that ijthihad has went through as well as the consequences resulted from distinguishing ijthihad in legal matter from theological issues.

Table 4.20, Continued

S64 to S77	This sub-stage explains how fatwa is practiced and who is in charge in issuing the fatwa in Islamic history. It also mentioned how fatwa is practiced in Muslim countries and what model they draw on.
S78 to S149	This sub-stage gives a full account of Indonesia history in forming the council of Indonesian Ulama (MUI).
S150 to S169	This sub-stage introduces the current stage by explaining that human actions can be attributed to several factors (fatwa in this case). It also mentioned some of fatwa that led to attempt of killing. It also included the major fatwa by MUI such as fatwa against Shi'ism, Ahmadiyah, IslamJama'ah, Darul Arqam and Christianity.
S170 to S245	This section discusses the history of Ahmadiyah existence and the fatwas issued by MUI against Ahmadiyah Islamic sect.
S246 to S305	This sub-stage mentions the fatwas issued by MUI on Shi'ism, Islam Jamaah, Darul Arqam, Inkar Sunnah and Salamullah.
S306 to S360	This sub-stage is concerned about the fatwa on teaching pluralism, liberalism and secularism as it came as a response to the influence of Liberal Islam. It also discusses the history of Madjid's movement as well as the Liberal Islam Network (JIL).
S361 to S374	This stage concludes the entire article that a strong relation exists between fatwa and violence in Indonesia.

**Table 4.21: Schematic Structure of Text 4**

Stage No.	Function of Stage	Sentence No.
<b>Stage 1</b>	Claiming Significance	S1 to S4
<b>Stage 2</b>	Purpose of Article	S5
<b>Stage 3</b>	Giving background information	S6 to S9
<b>Stage 4</b>	Article structure	S10 to S16
<b>Stage 5</b>	Definition and function of term	S17 to S63
<b>Stage 6</b>	Explanation	S64 to S149
<b>Stage 7</b>	Exemplifying	S150 to S360
<b>Stage 8</b>	Conclusion	S361 to S370

As shown in table 4.21, **Text 4** includes **8 stages** as follows:

#### **Stage1 Claiming significance**

The author initiates this article by showing how scarcely this issue is addressed. Due to its sensitivity, only one English book discussed this topic, albeit its significance.

Examples of expressions explaining this stage are shown below:

- (S1/INT/T4) The relationship between fatwa and violence typically does not attract many scholar, in spite of the fact that the issue has become increasingly important.
- (S2/INT/T4) There is only one English book that specifically discusses the topic.

The underlined expressions are used by the author to indicate that the issue was not covered sufficiently in comparison to its importance.

## **Stage2 Purpose of article**

This stage mentions the underlying aim of this article by examining cases in Indonesia.

- (S5/INT/T4) This article is an attempt to provide such a study by examining some cases in Indonesia.

The underlined preposition “**such**” refers to the preceding issue discussed by the author which he intends to address in this article. The issue is the association of fatwa and violence in Indonesia and the possibility of the former to instigate the latter.

## **Stage3 Giving background information**

As Indonesia would be considered as a case study for this article, the author justifies his selection and provides information on Indonesia. The following examples illustrate the stage:

- (S6/INT/T4) Indonesia is not the only Islamic country...
- (S7/INT/T4) I mainly useIndonesia as the object of this study for pragmatic reasons...
- (S8/INT/T4) Indonesia is the most populous Muslim country....

## **Stage4 Article structure**

In this stage, an outline of the division of the article is provided by the author.

- (S10/INT/T4)I will divide this paper into three sections.

The underlined word “divide” is a clear indication of this stage.

## Stage 5 Definition and function of term

In this stage, the author attempts to clarify the term “fatwa” and to explain its various meanings throughout the history of Islam. The following expressions present evidence from the article:

- (S17/TNF/T4) Fatwa is generally defined as....
- (S24/TNF/T4) In the early days of Islam, fatwa generally referred to...
- (S35/TNF/T4) Fatwa generally deals with...

As shown in the examples, a number of expressions are used like “**defined as**” and “**referred to**” which vindicate that this stage is a comprehensive explanation of the term “fatwa” as the term may carry a multiplicity of meanings.

## Stage6 Explanation

This stage is an explanation of the chronological stages that Indonesia has gone through an institutionalize fatwa and how (Majelis Ulama Indonesia, UMI) was formed. The underlined words in the following sentences elaborate some of those stages:

- (S86/IFI/T4) MUI was established in 1975.
- (S87/IFI/T4) It took five years from the initial....
- (S109/IFI/T4) It was not until five years later that the idea...
- (S114/IFI/T4) Five years earlier, when he rejected the idea,...

## Stage7 Exemplifying

In this stage the author mentions examples for fatwa issued against some groups such as Shi’ism, Ahmadiyah etc. that caused violence in Indonesia. The author also narrates the history of those groups and how they come to exist.

- (S170/IVF/T4) among the baffling fatwas that the MUI has issued, fatwas on Ahmadiyah are perhaps the most grievous one.



- (S287/IVF/T4) The fatwa on Inkar Sunnah was also released in 1994, although the process of making the fatwa has been enacted since June 1983.

- (S288/IVF/T4) Inkar Sunnah is a derogative term for those who reject the tradition of the Prophet (*hadith*), in contrast to the majority of Sunni Muslims...

- (S290/IVF/T4) among the fatwas on minority groups, the most virulent one was perhaps the fatwa that....

The author employs a number of expressions such as “**among**” to show that the fatwas mentioned in this article are part of a large number of fatwas issued against groups in Indonesia. A considerable number of data and explanation are used to mention the history of those groups who were attacked due to the fatwas issued by the MUI.

### **Stage 8 Conclusion**

This stage concludes the entire article by revealing the major findings of the author. The following sentences show how linguistically this stage functions as a conclusion.

- (S361/CON/T4) Let me conclude this article by .....
- (S362/IVF/T4) this finding clearly reveals that ...

### 4.3 Summary of the Schematic Structure for the Four Articles

The four texts of this study were analyzed for their schematic structure using the functional approach by Eggins (2004). According to this approach, the text is labeled into several stages based on the functional role they play in relation to the whole text.

This study will adopt the symbols used by Eggins (2004) to provide a general description of the schematic structure of the texts. Table 4.22 below shows a modified version of the symbols used by Eggins (2004).

**Table 4.22 Symbols to Describe Schematic Structure**

<b>Symbols</b>	<b>Meaning</b>
$X \wedge Y$	Stage X precedes stage Y (fixed order )
*Y	Stage Y is an unordered stage
(X)	Stage X is an optional stage
<X>	Stage X is a recursive stage

As shown in **Table 4.22**, the symbol  $\wedge$  is used to indicate that a particular stage should always occur before another stage. The use of asterisk \* before any stage indicates that a particular stage is unordered and could occur at any place. By placing parentheses ( ) around a stage, it indicates that this stage is optional and by the exclusion of this particular stage the genre is still realized. The symbol < > is placed round a stage implies that this stage can occur more than one time.

Table 4.23 presents a more concise description of the generic structure of the four texts and the stages of every text in a linear sequence.

**Table 4.23 General Description of Schematic Structure of the Four Texts**

No. of Text	Description of Schematic Structure
Text 1	(Establishing importance) *Stating main theme (*Defining term) <*Reasoning> <*Arguing and explanation> (*Comparison and contrast) <*Explanation> Conclusion
Text 2	(*Description) <*Elaborating> <*Argument> <*Explanation> Conclusion
Text 3	(*Giving background *Question-raising Identifying gap) Aim of article (*Article structure *Defining term) <*Argument> Conclusion
Text 4	(Claiming Significance) *Purpose of Article (*Giving background *Article structure *Defining term) <*Explanation> (<*Exemplifying>) Conclusion

**Table 4.23** shows the general description of schematic structure that prevails in each text. All the texts contain obligatory and optional stages. The stages that are found predominantly in all texts and that could be described as the defining elements of this genre are Purpose of study Stage, Explanation Stage, Argument Stage and Conclusion Stage. Some optional stages are found merely in some texts and not in all such as Article structure Stage and Giving Background Information Stage in Text 3 and in Text 4, Establishing Importance Stage in Text 1 and in Text 4 and Comparison and Contrast Stage in Text 1. The table also reveals that the Conclusion Stage is the only stage that occupies a fixed order being placed at the end of the article. The stage of Establishing Importance of the issue in Text 1 and Text 4 is placed at the beginning of the article. The stage of Purpose or Aim of the Article is not placed in a specific stage. In Text 1

and Text 2, it comes as the second stage preceding the stage of Establishing the Importance of the issue.

#### **4.4 Results of the Contribution of Lexical Items and Schematic Structure to the Meaning of the Articles**

The findings here respond to the third question of this study on how lexical cohesion and schematic structure contribute to the meaning of the texts. This section will illustrate how cohesion is achieved in the research articles of this study. This section will also investigate to what extent the schematic structure of the articles may contribute to the overall meaning of the articles. Selected segments from the four articles will be used to illustrate the contribution of lexical items and schematic structure to the meaning.

##### **4.4.1 Analysis of Text 1**

An excerpt from Text 1 will be used to show how cohesion is achieved.

(S131/ IMV/T1) In the question of cosmogenesis as well as the history, destiny, and end of the cosmos, the Islamic perspective possesses its own definite teaching based upon the Qur'an and Hadith. (S132/ IMV/T1) These teachings are nearly completely at variance with the seventeenth century European philosophical background from which modern science arose and which still dominates modern science, despite certain recent developments in the frontiers of contemporary physics which point to the possibility of a paradigm shift in modern science. (S133/ IMV/T1) These recent developments must not, however, be confused with the still dominant and prevalent philosophy of modern science to which the Islamic philosophy of science stands in stark opposition in the basic questions of the origin and end of the cosmos, the nature and origin of the laws observable in it, and the ultimate forces and agents which govern it.

This excerpt from the article “The question of cosmogenesis” discusses the point of view of Islamic thought against all related issues to the cosmos based on Qur'an and Hadith, which oppose the counter view of modern science.

The underlined word “teaching” in (S131) is reiterated in (S132) associated with the plural demonstrative “these” and therefore a relation of repetition occurs between the two sentences. (S133) is linked to (S132) through a relation of repetition. The term “recent developments” in (S132) is referred to in (S133) with the association of the plural demonstrative “these”.

#### 4.4.2 Analysis of Text 2

An excerpt from Text 2 will be used to show how cohesion is achieved.

(S1/GPC/T2) Drawing on Aristotle’s cosmology and Ptolemaic astronomy, Ibn Sina views the universe as consisting of nine concentric spheres contiguously nested, one within the other, from the lowest sphere of the moon to the outermost starless sphere. (S2/GPC/T2) These spheres are thought to be concentric because they seem to share a common center, which is the center of the universe, taken as coincident with the earth’s center. (S3/GPC/T2) On this model, each of the seven known ‘wandering stars’ or planets (al-kawakib al-mutahayyirah) – namely, the moon, the two inner planets (Mercury and Venus), the sun, and the three outer planets (Mars, Jupiter, and Saturn)- and the ‘fixed stars’ (al-thawabit) are assumed to be attached to eight solid but transparent spheres that carry them as they revolve around the earth. (S4/GPC/T2) There is a ninth, outermost sphere (kurah kharijah ‘anhamuhitah), which defines the edge or boundary of the universe and supposedly contains no star (ghayr mukawkabah), posited to explain the daily motion of the heaven, whereas the motion of the eighth sphere (that of the fixed stars) is said to be due to the precession of the equinoctial points (nuqtata al-I’tidal). (S5/GPC/T2) Each of these spheres, according to Ibn Sina, is governed by intelligence and a soul, which are respectively the remote cause and proximate principle of their motion.

This segment explains the general picture of the cosmos according to Ibn Sina’s view. In this segment, cohesion is achieved among the sentences through the string “spheres”. In (S1), the term “spheres” is reiterated again in (S2) with the association of the plural demonstrative “these” and thus a relation of repetition is achieved. Again the term is repeated in (S3), (S4) and (S5) and a relation of repetition occurs. The way the author introduces the discourse by connecting it with the lexis “spheres” creates a textuality.

#### 4.4.3 Analysis of Text 3

An excerpt from Text 3 will be used to show how cohesion is achieved.

(S1/INT/T3) The contemporary international relations are beset with the phenomenon of “international terrorism” widely believed to be closely associated with the Islamic concept of jihad – holy war. (S2/INT/T3) This phenomenon has become a global concern of international and state security. (S3/INT/T3) Global, regional, or inter-state relations are being reshaped surrounding policies regarding international terrorism. (S4/INT/T3) The concept has increasingly gained a particularistic identity within Islam due to the multiplicity of terrorist activities around the world during the past few years carried out by civilian Islamic groups such as Al-Qaeda, allegedly in the name of Islamic jihad. (S5/INT/T3) The identical relationship between international terrorism and Islam generated a common belief, at least in the West, that anything Islamic deems to have terrorist or violent connection. (S6/INT/T3) The situation is further aggravated by the fact that these groups frequently legitimize their terrorist activities by the Islamic concept of jihad. (S7/INT/T3) As such the concept of jihad, a most widely misunderstood one, is now squarely equated with terrorism.

This excerpt is taken from the introduction of the article. As shown in (S1), the underlined terms “terrorism” and “the concept of jihad” represent the underlying theme of the article. In (S2), the cohesive tie is maintained through the relation of synonymy. The term “phenomenon” along with the demonstrative “this” is used to refer to “international terrorism”. A relation of synonymy is achieved between (S2) and (S3) through linking the term “phenomenon” and “international terrorism”. Relations of synonymy and meronymy are achieved through linking (S3) with (S4). In (S4), the term “terrorist activities” is a kind of terrorism and therefore a relation of meronymy is achieved. The term “concept” is used with the article “the” to refer to the term “concept of jihad” in (S1). The string “International terrorism” is repeated in the first few lines of the article. This is likely to show the intention of the author in giving more emphasis on the subject of discourse.

#### 4.4.4 Analysis of Text 4

An excerpt from Text 4 will be used to show how cohesion is achieved.

(S1/INT/T4) The relationship between fatwa and violence typically does not attract many scholars, in spite of the fact that the issue has become increasingly important. (S2/INT/T4) Apart from Noorhaidi Hasan's article on the role of the Middle Eastern fatwas in the *jihad* movement in Maluku, Indonesia, there is only one English book that specifically discusses the topic (Mozaffari). (S3/INT/T4) There seems to be a hesitation in studying this topic, either due to sensitivity or over concern about the possible bias in it. (S4/INT/T4) Many Muslims would likely reject any attempt to associate fatwa with violence generally on normative grounds, but a proper study explaining how certain fatwas could instigate violent actions or intolerant attitudes would be useful.

In (S1), the underlying theme of the entire article is mentioned which is the relationship between fatwa and violence. This theme is encapsulated in one word namely "the issue". In the successive (S2), the word "the topic" is used to refer to the word "the issue" and thus a relation of synonymy is established. A relation of repetition occurs between (S2) and (S3) in which the term "topic" is repeated again in (S3) associated with the demonstrative "this". In (S4), the main issue is again mentioned explicitly "association fatwa with violence" and a relation of synonym is established with the lexis "this topic" in (S3).

#### 4.5 Findings and Discussions

The findings of Sections 4.1, 4.2, 4.3 and 4.4 will be shown and reflected on in view of the research questions reiterated below;

1. What are the underlying Lexical Ties found in the texts?
2. What are the underlying Schematic Structures in the texts?
3. How do Lexical Cohesion and Schematic Structure contribute to the meaning of the texts?

The analysis of lexical cohesion (Section 4.1) showed that the use of repetition is significantly high in all the four articles. The article "The Universe as a System" accounts for 70%, the article "The Question of Cosmogenesis" accounts for 66.6%, the

article “Jihad and Terrorism” includes 63% and the article “Fatwa and Violence in Indonesia” accounts for 50%. Thus, a conclusion could be drawn that repetition relation is the most favoured lexical tie in all articles. This conclusion is corroborated by other research like Srinivass (1996, 2004), Supramaniam (2004) and Nga (2012). It appears that repetition is a text forming resource for conciseness and clarity.

Ascribing the taxonomic relations of the lexical items is an insurmountable task due to the possibility of multiple options. Thus, it is subjective and, there is no true and false answer. For instance, a lexical item might be linked with another lexical item through a relation of synonymy; simultaneously, the same lexical item has a possible relation with another lexical item through a hyponymy relation. An excerpt from the article “Fatwa and Violence in Indonesia” is drawn to elaborate this process.

(S1/INT/T4) The relationship between fatwa and violence typically does not attract many scholars, in spite of the fact that the issue has become increasingly important. (S2/INT/T4) Apart from Noorhaidi Hasan’s article on the role of the Middle Eastern fatwas in the *jihad* movement in Maluku, Indonesia, there is only one English book that specifically discusses the topic. (S3/INT/T4) There seems to be a hesitation in studying this topic, either due to sensitivity or over concern about the possible bias in it.

In this example, (S1) is cohesively connected with (S2) through two relations. The lexis *fatwa* in (S1) has a relation of hyponymy with the lexis *Middle Easter fatwas* in (S2) as the former is deemed as one type of fatwa. The two sentences also have a possibility of being linked via a synonymy relation. The lexis *the topic* in (S2) harks back to the lexis *the issue* in (S1). The researcher opts for the synonymy relation instead of the hyponymy as this relation will maintain the string of cohesion with (S3). A relation of repetition is established between (S2) and (S3) through the repetition of the lexis *subject*.



The investigation of the schematic structure for the four articles in section 4.2 shows that the four articles do not follow a particular pattern in achieving their purposes. However, the articles have some similarity in some of their stages. This similarity indicates that there are some elements of schematic structure that define the research article genre. Such elements are obligatory to help us to identify the constituents of a particular genre. The obligatory stages found in this study are **Explanation Stage, Argument Stage and Conclusion Stage.**

Not all the articles share the same number of stages. Article 2 has five stages whereas the other three articles have eight stages.

The schematic structure shows that a stage may occur more than once within one research article. Text 1 incorporates the stage of **Explanation** twice; one time associated with argument and the other time alone.

#### **4.6 Chapter Summary**

The findings of the analysis indicate that repetition is the highest in occurrence in all articles. The findings also show that the overall structure of the research articles lack system. The next chapter will provide a summary of the study as well as the pedagogical implications obtained from the current study.

## **CHAPTER FIVE: CONCLUSION**

### **5.0 Introduction**

This chapter serves as a concluding chapter for this research on an investigation into cohesion and schematic structure on the discourse of *Islam and Science* and *Religion and Society* from the perspective of Systemic Functional Linguistics. This chapter is divided into four sub-sections. Section 5.1 is on summary of findings, Section 5.2 on the pedagogical implications, Section 5.3 on further research and Section 5.4 chapter summary.

### **5.1 Summary of Findings**

The main focus of this study was to explore how texts in the discourse of *Islam and Science* and *Religion and Society* are structured from the perspective of lexical cohesion and schematic structure. Three research questions were formulated for the investigation. They are :i) what are the underlying Lexical Ties found in the texts? ii) How does Lexical Cohesion contribute to the meaning of the texts? iii) What are the underlying Schematic Structures in the texts?

The study concludes that all the lexical relations namely, repetition, synonymy, antonymy, hyponymy and meronymy are found in the data, however; repetition was the most used lexical relation. This conclusion corresponds with other research findings as repetition is a crucial tool for any text to achieve its cohesion.

The current study also concludes that the research articles are not similar in their schematic structure. Obligatory and optional stages are found in all articles. The stages that exist in all articles are described as obligatory stages. The obligatory stages are: **Purpose of study Stage, Explanation Stage, Argument Stage and Conclusion Stage.** Optional stages, on the other hand, are the stages which are not found in all texts. For instance, the stage of **Exemplifying** is only found in Text 4 and the stage of **Comparison and Contrast** is merely found in Text 1. Further research in such kind of texts may show more obligatory stages. The findings also exhibit that the articles have unfixed order of stages; for instance, the stage of **Purpose of Study** did not occupy a definite stage.

## 5.2 Pedagogical Implications

Reading could be defined as the interaction between the reader and the text. This text should be comprised of a series of sentences and not of a collection of isolated sentences that are not related to each other. The knowledge of lexical cohesion and schematic structure could be used in enhancing students' skills of reading and writing. Thus, the current study might be of a great value in assisting students to overcome difficulties in understanding English texts written for special purposes. Analyzing lexical cohesion would guide students to pay attention to the way how texts cohere via the organization of lexis by using cohesive devices. Exploring the schematic structure could also be of significance for material developers to boost the reading skills for

students. A better understanding of the structural information of a particular genre would assist students to create schemata in their minds to increase the efficiency of their comprehension.

This study also could be of significance to researchers in this field via helping them to obtain the necessary knowledge of how to review their work in order to be accepted for publication.

Academic journals are rarely accepted once they are submitted. Predominately, they are returned back with suggestions from reviewers. This process normally happens few times before they are finally published. Thus, this study which investigates the lexical cohesion and schematic structure will contribute in minimizing the reiteration of this process.

### **5.3 Further Research**

This study has focused on showing the semantic relations between lexical items and illuminating the various stages used by writers on texts related to *Islam and Science* and *Religion and Society*. Further research could be carried out to analyze the data for its collocational potential. As this type of data has never been explored from a linguistic perceptive, more data may be investigated to substantiate the findings of this study. Moreover, other types of discourse could be investigated such as newspaper reports, research abstracts and university brochures for their cohesive elements and schematic structure.

### **5.4 Chapter Summary**

This chapter has provided a summary on how texts on the topic of *Islam and Science and Religion and Society* are structured from the point view of Lexical

Cohesion and Schematic Structure. It has also provided insights for the pedagogical implications of this study.

## REFERENCES

- Arif, S. (2009). The Universe as a System: Ibn Sina's Cosmology Revisited. *Islam and Sience*, 7(2), 127-145.
- Bamberg, B. (1983). What Makes a Text Coherent? *College Compositon and Communication*, 34, 417-429.
- Crystal, D. (1991). *Language A to Z*: Longman.
- de Beaugrande, R., W. U. Dressler. (1981). *Introduction to Text Linguistics*: London: Longman.
- Doyle, A. (1982). The Limitations of Cohesion. *Research in the Teaching of English*, 16(4), 390-393.
- Eggins, S. (2004). *An Introduction to Systemic Functional Linguistics* (2nd ed.): New York : Continuum.
- Gutwinski, W. (1976). *Cohesion in Literary Texts*: The Hague: Mouton.
- Haliday, M. A. K. (1978). *Language as Social Semiotic: The Social Interpretation of Language and Meaning*: University Park Press.
- Haliday, M. A. K. (1985). *An Introduction to Functional Grammar*: London: Edward Arnold.
- Haliday, M. A. K., J.R. Martin. (1993). *Writing Science: Literacy and Discursive Power*: 1st Edition, University of Pittsburgh Press.
- Haliday, M. A. K. (1994). *An Introduction to Functional Grammar* (2nd ed.): London: Edward Arnold.
- Haliday, M. A. K., Christian Matthiessen. (2004). *An Introduction to Functional Grammar* (3rd ed.): London: Edward Arnold.
- Halliday, M. A. K., R.Hasan. (1976). *Cohesion in English*: London. Longman.
- Halliday, M.A.K. & Hasan, Ruqaiya. (1989). Language, Context, and Text: Aspects of Language in a Social-Semiotic Perspective. London: Oxford University Press, (Part B).
- Hasan, R. (1984). Coherence and Cohesive Harmony. *Understanding Reading Comprehension*.
- Hoey, M. (1991). *Patterns of Lexis in Text*: Oxford University Press.
- Iqbal, M. (2007). *Science and Islam*: Westport, CT and London: Greenwood Press.
- Izutsu, T. (1964). *God and Man in the Koran: Weltanschauung*: Tokyo.

- Kuhi, D. (2008). An Analysis of the Move Structure of Textbook Prefaces. *The Asian ESP Journal*, 4(2), 63-78.
- MacMillan, F. (2007). The Role of Lexical Cohesion in the Assessment of EFL Reading Proficiency. *Arizona Working Papers in SLA & Teaching*, 14, 75-93.
- Martin, J. R. (1981). "Lexical Cohesion": Dept. of Linguistics. University of Sydney. (mimeo).
- Martin, J. R. (1985). Process and Text: Two Aspects of Human Semiosis. *Systemic Perspectives on Discourse*, 1, 248-274.
- Martin, J. R. (1989). *Factual Writing: Exploring and Challenging Social Reality*: Oxford: Oxford University Press.
- Martin, J. R. (1992). *English Text: System and Structure*: Philadelphia/Amsterdam: John Benjamins.
- Muhsin S. Mahdi, F. R., Annemarie Schimmel. Britannica Encyclopedia Retrieved 9 August, 2011, from <http://www.britannica.com/bps/search?query=islam>
- MUTO, K. (1990). The Use of Lexical Cohesion in Reading and Writing. Retrieved from [http://library.nakanishi.ac.jp/kiyou/gaidai\(30\)/07.pdf](http://library.nakanishi.ac.jp/kiyou/gaidai(30)/07.pdf)
- Myers, G. (1991). Lexical Cohesion and Specialized Knowledge in Science and Popular Science Texts. *Discourse Processes*, 14, 1-26.
- Ng, C. (2012). Analysis of cohesive Devices in the Esp Textbook on Accounting at university of Labor and Social Affairs, University of Languages and International Studies
- Nasr, S. H. (2006). The Question of Cosmogensis - The Cosmos as a Subject of Scientific Study. *Islam and Sience*, 4(1), 43-59.
- Quirk, G., Leech, Svartvik. (1972). *A Grammar of Contemporary English*: London: Longman.
- Ren, G. (2010). An Overall Review of Linguistic Research on Genre. *Review of European Studies*, 2(2), 232-235.
- Sriniwass, S. (2004). A Systemic-Semantic Investigation of Textuality through the Resources of Ideational Lexis in David Banks (ed.) Text and Texture. *Systemic Functional Viewpoint on the Nature and Structure of Text*.
- Sriniwass, S. (1996). *Lexical Cohesion in Chemistry Texts: An Exploration into Systemic-Semantic Relations, Unpublised M.A. Thesis*. University of Malaya, Kuala Lumpur.

- Stotsky, S. (1983). Types of Lexical Cohesion in Expository Writing: Implications for Developing the Vocabulary of Academic Discourse. *College Composition and Communication*, 34, No. 4, 430-446.
- Supramaniam, K. (2004). *A Systemic Functional Perspective of Lexical Cohesion in English Newspaper Commentaries in Malaysia*. University of Malaya, Kuala Lumpur.
- Thompson, G. (2004). *Introducing Functional Grammar*: 2nd edition, London: Edward Arnold.
- Tucker, G. (1998). *The Lexicogrammar of Adjectives: A Systemic-Functional Approach to Lexis*: London: Cassell.
- Ventola, E. (1987). *The Structure of Social Interaction: A Systemic Approach to the Semiotics of Service Encounter*: London: Frances Pinter.
- Viswanathan, V. (1997). *Reference Items in Agricultural Articles, Unpublished M.A. Thesis*. University of Malaya, Kuala Lumpur.
- Widdowson, H. G. (1978). *Teaching Language as Communication*: Oxford University Press.
- Wiriyachitra, Arunee. (1982). "A Scientific Reading Program". *Forum*. XX, No. 3, July, 20-23.
- Walsh, Vincent. (1982). "Reading Scientific Texts in English". *Forum*. XX, No. 3, July, 24-37.
- Xuefan, C. (2007). Lexical Cohesion in Chinese College EFL Writing. *CELEA Journal*, 30, 46-57.
- Zaimeche, S. (2002). Islam and Science. 2-7. Retrieved from <http://www.muslimheritage.com/uploads/ACF2B30.pdf>



# APPENDIX A1: TRANSCRIPT - THE QUESTION OF COSMOGENESIS – THE COSMOS AS A SUBJECT OF SCIENTIFIC STUDY (ARTICLE 1)

S1/INT/T1	<b>The</b> study of <b>the</b> cosmos involves <b>the</b> question of <b>its</b> origin, and there is no school of <b>the</b> philosophy of science- whether ancient or modern, Eastern or Western -- that has not dealt in one way or another with <b>this</b> problem.
S2/INT/T1	Islam and <b>the</b> sciences cultivated in <b>its</b> bosom are no exception.
S3/ INT/T1	In fact, <b>the</b> Nobel Qur'an insists over and over upon <b>the</b> ultimate significance of <b>the</b> question of <b>the</b> genesis of <b>the</b> cosmos for <b>the</b> religious life itself, and directs all veritable Islamic thought to concern itself, after <b>the</b> study of <b>the</b> divine principle, first of all with <b>the</b> question of <b>the</b> origin of <b>the</b> world before turning to <b>the</b> possibility and manners of <b>its</b> study.
S4/ INT/T1	Moreover, Islamic thought, basing itself on <b>the</b> Qur'an, has always considered <b>the</b> question of cosmogenesis to be a religious and metaphysical one, <b>the</b> answer to which comes from <b>the</b> truth of revelation and not simply from an extension and extrapolation of <b>the</b> sciences of <b>the</b> natural and physical order.
S5/ INT/T1	<b>The</b> Islamic attitude to <b>this</b> question stands therefore at <b>the</b> antipode of <b>the</b> modern Western scientific view, which considers cosmology and cosmogenesis as simply extensions of physics, astrophysics, and <b>other</b> branches of <b>the</b> natural sciences.
S6/ INT/T1	Islam insists that <b>the</b> cosmos, no matter how vast quantitatively, is but a speck of dust before <b>the</b> Divine Reality which alone is absolute and infinite.
S7/ INT/T1	All that is ma' siwa'Lla'h (that is, other than Allah), and is as nothing before <b>the</b> Majesty of <b>the</b> Divine.
S8/ INT/T1	Moreover, within <b>the</b> created order itself, <b>the</b> archangelic and angelic worlds are of <b>such</b> immensity that <b>the</b> invisible and physical world pales into insignificance before <b>them</b> .
S9/ INT/T1	<b>This</b> is <b>the</b> implication of many aha'dith concerning <b>the</b> angels, such as <b>the</b> <u>one</u> concerning <b>the</b> Angel of Death <u>whom</u> God has veiled with a million veils and <u>who</u> is <b>more</b> immense than all <b>the</b> heavens and <b>the</b> two earths (that is, East and West).

S10/ INT/T1	<b>The</b> physical part of <b>the</b> cosmos that is <b>the</b> subject of study by natural sciences has a beginning and an end.
S11/ INT/T1	<b>It</b> is <b>the</b> lowest level of reality which is encompassed, metaphorically speaking, by worlds immensely greater than <b>it</b> .
S12/ INT/T1	And all of <b>these</b> worlds are in turn but as a dust-mote before <b>the</b> Divine Throne.
S13/ INT/T1	<b>The</b> Qur'an affirms over and over again that <b>the</b> world was created and did not come into being by itself.
S14/ INT/T1	<b>It</b> insists on <b>the</b> ontological dependence of <b>the</b> world upon God and <b>the</b> fact that all <b>the</b> coherence, regularity, and harmony of <b>the</b> natural order is a result of <b>the</b> nature of <b>the</b> Creator and <b>His</b> Wisdom, which is reflected in <b>His</b> creation.
S15/ INT/T1	<b>The</b> Qur'an repeats in many verses that God is <b>the</b> Creator (al-Kha'liq) of <b>the</b> world. <i>Recite, in the Name of thy Lord who created ; Your Lord is Allah, who created the heavens and the earth in six days.</i>
S16/ INT/T1	<b>He</b> is also creator in <b>the</b> sense of al-Fa'tir. <i>Lo! I have turned my face toward Him who created the heavens and the earth ; and your Lord is the Lord of the Heavens and the earth, Who created them.</i>
S17/ INT/T1	Man in fact addresses God as <i>O Thou Creator (Fa'tir) of the heavens and the earth!</i>
S18/ INT/T1	Moreover, <b>the</b> Qur'an emphasizes that God created not only <b>the</b> heavens and <b>the</b> earth but everything within <b>them</b> . <i>We created the heavens and the earth and what is between them.</i>
S19/ INT/T1	There is also an insistence that <b>the</b> duality of <b>the</b> masculine and feminine observed in all of creation in one form or another is <b>the</b> result of God's creation and not <b>the</b> consequence of some cosmic or biological process, <i>for we have created you male and female.</i>
S20/ INT/T1	There is also more general reference in <b>the</b> Qur'an to God's creation of pairs.
S21/ INT/T1	Not only is God <b>the</b> Creator, but <b>He</b> is <b>the</b> only power who can create.
S22/ INT/T1	<b>He</b> created <b>the</b> world through <b>His</b> Will: <b>He</b> said "Be" (kun), and there was.
S23/ INT/T1	<b>The</b> Divine Word is <b>the</b> origin of <b>the</b> entire created order.
S24/ INT/T1	Moreover, within <b>this</b> order God creates what <b>he</b> wills, as is repeated so often in <b>the</b> Qur'an.

S25/ INT/T1	And it is <b>He</b> who bestows upon things their nature and <b>the</b> laws and order that govern <b>them</b> : <i>our Lord is He who gave everything its nature, then guided it aright.</i>
S26/ INT/T1	Being <b>the</b> origin of <b>the</b> world, God is also <b>its</b> end, and creation returns to <b>Him</b> . <i>God originates creation, then brings it back again ; The Day when We shall roll up the heavens, as a recorder rolleth up a written scroll- and We began the first creation. We shall bring it back again.</i>
S27/ INT/T1	<b>He</b> can also destroy <b>the</b> world and create a new <u><b>one</b></u> , <i>for hast thou not seen that Allah created the heavens and the earth with truth? If He Wills, He can remove you and bring (in) some new creation.</i>
S28/ INT/T1	As <b>the</b> creator, God established law and order that a man cannot alter, <i>for there is no altering the laws of God's creation; and although he has given man the possibility of knowing the cosmos, it is only God who knows all creation</i> and has knowledge of everything in <b>the</b> universe, from <b>the</b> movement of <b>the</b> stars to <b>that</b> of an ant within <b>its</b> hole.
S29/ INT/T1	<b>The</b> Islamic cosmos comes from God, is governed by <b>Him</b> , and returns to <b>Him</b> .
S30/ INT/T1	<b>It</b> is not an autonomous and independent reality with an unknown or simply material beginning and end.
S31/ INT/T1	Nor are <b>its</b> laws developed by chance or by <b>its</b> own inner workings, or are <b>the</b> changes and transformations taking place within <b>it</b> solely dependent upon <b>its</b> own forces and energies.
S32/ INT/T1	Creative power always belongs to <b>the</b> Creator, not <b>the</b> created order, although <b>that</b> power has manifested itself in countless ways in <b>the</b> cosmos throughout <b>its</b> long history and God has acted through various agencies.
S33/ INT/T1	<b>Different</b> schools of Islamic thought, basing themselves on <b>the</b> terminology of <b>the</b> Qur'an and Hadi'th, have developed a rich technical vocabulary concerning creation in order to bring out <b>different</b> meanings of <b>this</b> term.
S34/ INT/T1	Later Qur'anic commentators and Muslims thinkers have distinguished between khalq, fitr, sun', ibd'a, and huduth, <b>each</b> of which possesses an exact meaning in various schools of commentary (tafsi'r), theology, Sufism, and philosophy.

S35/ INT/T1	<b>The</b> Qur'an itself refers to <b>these</b> terms in one form or another <b>aswellas</b> to <b>the</b> creative function of God as <b>the</b> producer (al-Ba'ri) and as <b>the</b> Form-giver (al-Musawwir), as in <b>the</b> verse, <i>He is God, the Creator (al-Kha'liq), the Producer (al-Ba'ri), and the Form-giver (al-Musawwir).</i>
S36/ INT/T1	<b>The</b> diversified terminology of <b>the</b> Qur'an has caused numerous debates over <b>the</b> centuries concerning <b>the</b> meaning of creation.
S37/ INT/T1	<b>The</b> main issue emphasized by Muslims thinkers, which is also of importance to <b>the</b> present discussion, concerns creation from nothing (ex nihilo, min al-adam) on the one hand, and from a previously unformed matter on the <b>other</b> - as well as <b>the</b> meaning of this "nothing".
S38/ INT/T1	<b>Those</b> questions, that have been discussed and analyzed since <b>the</b> first Islamic century, are, properly speaking, <b>the</b> concern of theology and metaphysical but <b>they</b> are also important for <b>the</b> philosophy of science.
S39/ INT/T1	<b>The</b> importance of <b>the</b> subject and <b>the</b> very extensive debates carried out about <b>it</b> in various schools of Islamic thought must therefore be mentioned even if briefly.
S40/ INT/T1	On the one hand <b>the</b> Qur'an asserts that God said ' <i>Be</i> ', <i>and there was- the famous kun fayaku'n.</i>
S41/ INT/T1	<b>This</b> has usually been interpreted as meaning creation from nothing, although creation itself implies God's knowledge of <b>His</b> creation and hence <b>the</b> "presence" of <b>the</b> world in Divine knowledge before <b>its</b> external creation.
S42/ INT/T1	And then there are aha'dith and sayings of some Companions such as 'Ali bin Abi Talib referring to <b>the</b> creation of <b>the</b> world from "dust" or "cloud" (al-hab'a), a term that must be understood symbolically.
S43/ INT/T1	Let us turn to <b>the</b> question of God's Name as <b>the</b> Creator (al-Khaliq).
S44/ INT/T1	If <b>the</b> world were created at a particular moment before which <b>it</b> did not exist, then either God was not al-Khaliq before <b>that</b> moment, which would imply a change in <b>the</b> Divine Nature, a thesis that Islam could not accept, or one would have to accept that since God is al-khaliq, <b>he</b> must always created and therefore there must have always been a creation.
S45/ INT/T1	Furthermore, time is itself a feature of <b>the</b> created order.
S46/ INT/T1	Therefore, there could not be a time before creation and creation could not have a beginning in time.

S47/ INT/T1	<b>This</b> is basically <b>the</b> argument of Islamic philosophers against <b>the</b> theologians (mutakallimun) concerning <b>the</b> creation of the world.
S48/ INT/T1	Muslims seeking to avoid all danger of attributing any Divine Qualities (such as eternity) to <b>the</b> world sought to answer <b>these</b> questions in such a way as to preserve <b>the</b> status of <b>the</b> Creator as <b>the</b> source of all reality and creative power.
S49/ INT/T1	Following <b>the</b> clear message of <b>the</b> Qur'an, <b>they</b> identified <b>the</b> power of creation with <b>the</b> Divinity and therefore insisted that since only God possesses Divinity in <b>the</b> ultimate sense, only <b>He</b> can be <b>the</b> creator.
S50/ INT/T1	All creative power must belong to <b>Him</b> and originate from <b>Him</b> , as emphasized by <b>the</b> whole tradition of Qur'anic commentators from al Tabari to Fakhr al-Din al-Razi, from al-Tabarsi to Ibn al-Jawzi.
S51/ INT/T1	<b>The</b> greatest Muslim thinkers such as such as al-Farabi, al-Ashari, Ibn Sina, al-Ghazzali, Fakhr al-Din Razi, Ibn Rushd, Ibn Arabi, and in more recent centuries Sadr al-Din Shirazi and Shah Wali Allah Dihlawi devoted much of <b>their</b> writing to <b>this</b> problem, which came to be known classically as al-huduth wal-qidam.
S52/ INT/T1	<b>The</b> debates between various schools of Islamic thought cannot be repeated or summarized <b>here</b> .
S53/ INT/T1	But what is significant for <b>the</b> Islamic philosophy of science is that all schools of Islamic thought, basing themselves upon <b>the</b> Qur'an and Hadith, agree that only God creates and <b>that</b> creative power belongs, ultimately, to God alone.
S54/ INT/T1	<b>They</b> also agree that God has knowledge of all things and that nothing occurs in <b>the</b> world without <b>His</b> knowledge.
S55/ INT/T1	Even <b>those</b> who accept that <b>the</b> world is qadim, that is, having no origin in time, do not consider <b>the</b> "world" to mean <b>the</b> whole created order as such, for <b>the</b> created order comes into being and passes away all the time according to God's knowledge and Will; but <b>they</b> mean matter (al-maddah or hayula) which is <b>the same as the</b> Scholastic <i>material prima</i> in <b>the</b> sense of <b>that</b> which has no origin in time but is also pure receptivity, not actuality, and therefore not to be confused with matter in <b>the</b> modern scientific sense of <b>the</b> term.

S56/ INT/T1	<b>Like</b> other Muslims thinkers, <b>such</b> thinkers consider what we call <b>the</b> world to be ontologically dependent upon God, without whom <b>it</b> would have no existence whatsoever.
S57/ INT/T1	There are no traditional Islamic schools of thought which would consider <b>the</b> world an order of reality independent of God.
S58/ INT/T1	<b>The</b> Islamic philosophy of science is totally opposed not only to <b>the</b> atheistic view which denies God and considers <b>the</b> universe as <b>the</b> only reality but also to <b>the</b> deistic position, according to which God is only <b>the</b> originator of <b>the</b> universe in <b>the</b> sense of a mason who builds a house and has no relation with <b>it</b> afterwards- so that <b>his</b> death or passing would not at all affect <b>the</b> existence of the house.
S59/ INT/T1	In <b>the</b> Islamic perspective, <b>the</b> whole universe is ontologically dependent upon God at all moments, not only at <b>the</b> beginning.
S60/ INT/T1	Without God's Word kun being operative <b>here</b> and now, <b>the</b> whole universe would collapse and be literally nothing.
S61/ INT/T1	<b>It</b> would cease to exist.
S62/ INT/T1	There is a teaching developed by a number of Sufis according to which <b>the</b> universe is annihilated and recreated at every moment, so that <b>its</b> ontological dependence upon God holds for every moment of <b>its</b> existence.
S63/ INT/T1	God has not only created <b>the</b> world but sustains and in reality re-creates <b>it</b> at every instant, not only through <b>His</b> knowledge but also through <b>His</b> Will, which is associated with <b>the</b> command form of the verb "to be" (kun).
S64/ INT/T1	As already mentioned, God said "Be", and there was.
S65/ INT/T1	<b>The</b> whole universe , <b>this</b> world and <b>the</b> next, were brought into being by <b>these</b> two letters, k and n.
S66/ INT/T1	As <b>the</b> Persian poet Mahmud Shabistari says in praising God, <i>from k and n He brought forth the two worlds of being (kawnayn).</i>
S67/ INT/T1	<b>The</b> Word by which all things were made is known in Islamic sources as al-Kalimah, which is also a name of <b>the</b> Qur'an that in a sense is <b>the</b> complement and in another <b>the</b> prototype of creation itself.
S68/ INT/T1	Certain ahadith refer to the Kalimah as <b>the</b> first being created by God (awwalu ma khalaqa'Llah), while <b>others</b> refer to the Pen (al-Qalam), Light

	(al-Nur), Intellect (al-Aql), or Spirit (al-Ruh) as <b>the</b> first creation of God through which everything else was made.
S69/ INT/T1	<b>These</b> ahadith all refer to <b>the</b> same reality which is at once word, Pen, Light, Intellect, and Spirit, each of <b>these</b> terms alluding symbolically to an aspect of <b>that</b> reality that was and is God's first creation and also first instrument of creation.
S70/ INT/T1	Furthermore, God did not create only <b>the</b> physical cosmos.
S71/ INT/T1	Between <b>the</b> Kalimah and <b>the</b> spatio-temporal world that is the subject of <b>the</b> sciences of nature stand <b>the</b> archangelic and angelic worlds (al-jabarut and al-malakut) and <b>the</b> world of physic being, or <b>the</b> imaginal world to which <b>the</b> jinn referred to so often in <b>the</b> Qur'an belong.
S72/ INT/T1	<b>The</b> angelic world itself, moreover, is composed of vast hierarchies ranging from <b>the</b> supreme Ruh that stands above creation to <b>the</b> archangels to <b>the</b> host of angels who govern <b>the</b> affairs of the world.
S73/ INT/T1	Traditional Islamic literature is replete with references to <b>them</b> and no amount of modern rationalism and skepticism can gloss over <b>their</b> importance for <b>the</b> authentic Islamic worldview.
S74/ INT/T1	For example, 'Ali has said: <i>Then He created the openings between high skies and filled them with all classes of His angels. Some of them are in prostration and do not [rise to] kneel. Others remain kneeling and do not stand. Some of them are in array and do not leave their position. Others are extolling Allah and do not get tired. The sleep of the eyes or the slip of wit, or languor of the body or the effect of forgetfulness, does not affect them. Among them are those who work as trusted because of His message, those who serve speaking tongues for His prophets and those who carry to and fro His orders and injunctions. Among them are the protectors of His creatures and guards of the doors of the gardens of Paradise. Among them are also those whose steps are fixed on earth with their necks protruding into the skies, their limbs extending on all sides, their shoulders in accord with the columns of the Divine Throne, their eyes downcast before it: they have spread down their wings under it and they have rendered between themselves and all else curtains of honour and screens of power. They do not think of their Creator through images, do not impute to Him attributes of the created, do not confine Him within abodes, and do not point at Him</i>

	<i>through Illustrations.</i>
S75/ INT/T1	Creation in <b>the</b> Islamic context means <b>more</b> than <b>the</b> creation of <b>the</b> physical world, which is itself a “condensation” and “crystallization” of realities belonging to <b>higher</b> levels of existence, levels <b>all of which</b> are also created by God.
S76/ INT/T1	In all realms of <b>the</b> cosmos, ranging from <b>the</b> archangelic to <b>the</b> material, moreover, there are laws established by <b>the</b> Creator which all beings obey; but <b>these</b> laws are not simply laws based on empirical observation of <b>the</b> physical world and/or <b>their</b> rationalistic extrapolations.
S77/ INT/T1	<b>This</b> is made clear by <b>the</b> Qur’an itself in <b>the</b> case of <b>the</b> days of creation.
S78/ INT/T1	In several places <b>the</b> Qur’an asserts that <b>the</b> world was created in six days, while <b>the</b> earth was created in two days.
S79/ INT/T1	But <b>the</b> Qur’an insists that time itself is not the quantitative linear time associated with <b>the</b> empirical observation of <b>the</b> physical world.
S80/ INT/T1	Rather <b>it</b> is qualitative and cannot be simply measured as if <b>it</b> were a homogenous quantitative entity. <i>Thus The Night of Power is better than a thousand months ; A day with the Lord is as a thousand years ; or A day whereof the span is fifty thousand years.</i>
S81/ INT/T1	<b>The</b> genesis and history of <b>the</b> cosmos is based on a qualitative conception of time totally different from <b>the</b> quantitative time of modern geology, astronomy, and astrophysics where one speaks of four billion years as if each year were a unit identical with <b>the</b> year before it, like so many identical blocks of stone set next to each other.
S82/ INT/T1	<b>The</b> Islamic philosophy of science cannot but remain aware of <b>the</b> qualitative nature of time alluded to in <b>the</b> Qur’an in many verses, including <b>the</b> story of <b>the</b> Ashab al-Khahf (the Seven Sleepers of the Cave).
S83/ INT/T1	<b>This</b> philosophy cannot but remain completely skeptical about all hypotheses that interpolate <b>the</b> results of physical periods of <b>the</b> past and future.
S84/ INT/T1	It’s obvious from what has been said that in <b>the</b> Islamic perspective not only cosmogenesis but also <b>the</b> end of the cosmos are related to God.



S85/ INT/T1	Not only are all things created by <b>Him</b> , but all beings within creation and creation as a whole return to <b>Him</b> .
S86/ INT/T1	God is both <b>the</b> Alpha and Omega of creation and Islamic cosmology is therefore concerned with both cosmogony and eschatology. <i>He is the first and the last, the outward and inward.</i>
S87/IPC/T1	Of all <b>the</b> different cosmologies developed in Islamic civilization, including Ismai'li, mashshai, ishraqi, Ib Arabian Sufism, etc., none has been as important for <b>the</b> development of the Islamic sciences as <b>the</b> philosophical cosmology which originated with al-Farabi and Ibn Sina, was criticized not only by the Ash'arites but to some extent also by Ibn Rushd, and revived by Nasir al-Din Tusi.
S88/ IPC/T1	<b>This</b> cosmological scheme began with <b>the</b> First intellect, nine <b>other</b> Intellects each of which generated a particular heavenly sphere that possessed <b>its</b> own soul, and ended with <b>the</b> Tenth Intellect which governed <b>the</b> sublunar region.
S89/ IPC/T1	<b>The</b> states and levels of being and also intellect that are metaphysical and independent of astronomy were thereby correlated with Ptolemaic scheme as modified by Islamic astronomers.
S90/ IPC/T1	Since each Intellect was generated by <b>the</b> intellect above, <b>the</b> Divine Reality reached all levels of existence and in fact generated <b>those</b> levels.
S91/ IPC/T1	Moreover, for Ibn Sina <b>the</b> hierarchy of Intellects and Souls of <b>the</b> spheres were identified with realities that in <b>the</b> language of religion were called angles.
S92/ IPC/T1	Ibn Rushd preserved <b>the</b> Intellects of <b>the</b> spheres while rejecting <b>their</b> Souls, while Tusi re-established the full Avicennan scheme.
S93/ IPC/T1	<b>This</b> cosmology is <u><b>much more</b></u> profound than <b>its</b> critics have thought.
S94/ IPC/T1	In <b>the</b> West, however, once <b>the</b> Ptolemaic world was destroyed by Copernicus and Galileo, <b>the</b> hierarchy of being also came to be doubted in mainstream Western thought and Leibnitz was <b>the</b> last major Western philosopher to take angels seriously.
S95/ IPC/T1	In <b>the</b> Islamic world in <b>the</b> seventeenth century Sadr al-Din Shirazi consciously separated <b>the</b> hierarchy of being from <b>the</b> Ptolemaic scheme through <b>the</b> formulation of another type of cosmology.

S96/ IPC/T1	<b>That</b> is one of the reasons, among others, for <b>the</b> presence of a living metaphysical tradition and why Muslims learned about modern astronomy, <b>they</b> were not as deeply affected by <b>it</b> religiously as were Western thinkers.
S97/ IPC/T1	<b>The</b> weakening of <b>the</b> hold of traditional schemes of cosmology in <b>the</b> Islamic world, also based on principles mentioned above, occurred later and for reasons other than what one finds in <b>the</b> West.
S98/IMV/T1	From what has been outlined briefly, it is clear how different <b>the</b> Islamic view of <b>the</b> origin, governance, and end of <b>the</b> cosmos is from what has developed in <b>the</b> West in <b>the</b> domain of what has been called cosmology since <b>the</b> scientific revolution.
S99/IMV/T1	In <b>the</b> Islamic perspective, God is <b>the</b> absolute and sole Creator, <b>the</b> sole giver of existence to <b>the</b> cosmos.
S100/IMV/T1	<b>The</b> universe or <b>the</b> created order or nature do not possess <b>the</b> power of creating in <b>the</b> sense of bestowing existence or even form, in <b>the</b> traditional meaning of <b>the</b> term.
S101/ IMV/T1	God alone is giver of existence and of forms.
S102/ IMV/T1	<b><u>In contrast</u></b> , modern cosmologies remain of necessity uncertain as to <b>the</b> origin and end of <b>the</b> cosmos and shift <b>the</b> power of god to nature considered as independent of <b>Him</b> .
S103/ IMV/T1	Many scientists now speak of <b>the</b> big bang theory while yesterday <b>they</b> spoke of something else, and tomorrow <b>they</b> will point to <b><u>other</u></b> theories.
S104/ IMV/T1	In fact <b>the</b> big bang theory is already being challenged by some modern cosmologists.
S105/ IMV/T1	It is interesting to note, however, that during the past few decades modern cosmologists have spoken so often about <b>the</b> big bang theory and have pointed to an “origin” for <b>the</b> universe of some 16 billion years, at <b>the</b> beginning of which at very high energy levels <b>the</b> four forces now observable in nature (namely, the gravitational, the weak, the strong, and the electromagnetic) were one.
S106/ IMV/T1	Some even claim to know exactly what happened from 10-49 seconds after <b>the</b> event of <b>the</b> big bang, after which moment everything contained in <b>the</b> universe with all <b>the</b> laws that can now be observed and studied were present.

S107/ IMV/T1	Despite <b>the</b> fact that many Western theologians and philosophers have jumped at <b>this</b> opportunity to claim scientific support for <b>the</b> religious doctrine of creation on <b>the</b> basis of <b>these</b> theories, it is important for Muslims to preserve a critical perspective on <b>this</b> matter by basing themselves on <b>the</b> Islamic point of view.
S108/ IMV/T1	It must be remembered that only a generation ago, cosmologies spoke of expanding and contracting phases of <b>the</b> universe which some compared to <b>the</b> day and night of <b>the</b> life of Brahman in Hindu cosmology.
S109/ IMV/T1	A generation from now <u>some other</u> interpretation may be placed upon <b>this</b> most conjectural type of so-called scientific activity called modern cosmology.
S110/ IMV/T1	Furthermore, if man's consciousness can now know what went on at <b>the</b> beginning of <b>the</b> creation of <b>the</b> world, how could consciousness have been absent at <b>that</b> moment of creation?
S111/ IMV/T1	Finally, <b>the</b> big bang theory, even if interpreted in <b>the</b> religious sense of <b>the</b> creation of <b>the</b> world, reduces <b>the</b> relation of God to <b>the</b> world to a purely material one.
S112/ IMV/T1	Today one theory after another is posited to explain <b>the</b> origin of <b>the</b> cosmos without reference to God and to <b>the</b> higher levels of being, cutting <b>the</b> "Hands" of God from <b>His</b> creation.
S113/ IMV/T1	Even <b>this</b> relationship, moreover, is cloaked in ambiguity and based on incredible conjectures.
S114/ IMV/T1	<b>The</b> Divine origin envisaged by Islam for <b>the</b> cosmos is <u>in contrast</u> not clouded by any doubts or ambiguity.
S115/ IMV/T1	Nor is <b>the</b> relation of <b>this</b> origin to <b>the</b> world seen as being only material.
S116/ IMV/T1	Since God has knowledge of <b>the</b> cosmos, <b>the</b> reality of everything was inscribed upon "the Guarded Tablet" (al-lawh al-mahfuz) even before material creation took place.
S117/ IMV/T1	And God bestowed existence upon <b>the</b> archetypes, existence of which <b>the</b> physical mode is <b>the</b> lowest and far from being <b>the</b> only mode.
S118/ IMV/T1	Modern cosmologists have also speculated about <b>the</b> end of <b>the</b> universe, which many see to be a final death, like <b>that</b> of individual stars.

S119/ IMV/T1	For Islam, however, <b>the</b> end of <b>the</b> cosmos, or its omega point, is also God, for all things return to <b>Him</b> .
S120/ IMV/T1	<b>This</b> re-absorption into higher states of being and finally <b>the</b> Principal Order is simply beyond <b>the</b> confines of modern science.
S121/ IMV/T1	Islamic thought once again harbors no doubt as to <b>this</b> reality so forcefully described in Islamic eschatological teachings.
S122/ IMV/T1	As <b>this</b> world became manifested suddenly through <b>the</b> kun, or Divine command, so will <b>it</b> one day come to an end through <b>the</b> Will of God, through a sudden process beyond <b>the</b> observable laws of nature, by becoming integrated into <b>the</b> higher states of being and not simply dying out slowly on <b>the</b> basis of extrapolation of <b>the</b> behavior of present day astronomical phenomena into vast spans of time in <b>the</b> future.
S123/ IMV/T1	As for <b>the</b> laws governing <b>the</b> cosmos now, Islam sees <b>the</b> power of God manifested throughout <b>the</b> universe.
S124/ IMV/T1	It is God's agents, known as angels in religious language, who govern <b>the</b> events of <b>this</b> world according to <b>His</b> Will but also according to laws determined by God and reflecting <b>His</b> Wisdom.
S125/ IMV/T1	If most of modern science and its philosophy see <b>the</b> order and regularity of <b>the</b> phenomena of nature as proof that <b>the</b> cosmos does not need God to function, Islam sees <b>this</b> very regularity as <b>the</b> sign of <b>His</b> Wisdom and Will ruling over <b>the</b> universe and proof of <b>His</b> existence.
S126/ IMV/T1	For a modern skeptic, <b>the</b> proof of God would come in <b>the</b> sun not rising tomorrow or some miraculous event taking place in <b>the</b> natural order.
S127/ IMV/T1	For <b>the</b> Muslims <b>the</b> greatest proof of <b>the</b> presence of God is that <b>the</b> sun does rise every morning.
S128/ IMV/T1	For <b>the</b> mainstream of modern science, there are laws of nature to be studied independently of whether God exists or not.
S129/ IMV/T1	For Islam there are no laws of nature outside God's Will and Wisdom manifested in <b>His</b> creation, of which <b>He</b> is <b>the</b> Sustainer, <b>the</b> Origin, and <b>the</b> End, for <i>God originates creation, then brings it back again</i> .
S130/ IMV/T1	<b>He</b> is, moreover, <b>the</b> Origin of all forms, including living forms, while <b>the</b> prevalent schools of <b>the</b> philosophy of modern science consider nature itself to be <b>the</b> progenitor of both forms and of life, independent of God, and not as an agent of God (as held by certain classical Muslim thinkers).

S131/ IMV/T1	In <b>the</b> question of cosmogenesis as well as <b>the</b> history, destiny, and end of <b>the</b> cosmos, <b>the</b> Islamic perspective possesses its own definite teaching based upon <b>the</b> Qur'an and Hadith.
S132/ IMV/T1	<b>These</b> teachings are nearly completely at variance with <b>the</b> seventeenth century European philosophical background from which modern science arose and which still dominates modern science, despite certain recent developments in the frontiers of contemporary physics which point to <b>the</b> possibility of a paradigm shift in modern science.
S133/ IMV/T1	<b>These</b> recent developments must not, however, be confused with <b>the</b> still dominant and prevalent philosophy of modern science to which <b>the</b> Islamic philosophy of science stands in stark opposition in <b>the</b> basic questions of <b>the</b> origin and end of <b>the</b> cosmos, <b>the</b> nature and origin of <b>the</b> laws observable in <b>it</b> , and <b>the</b> ultimate forces and agents which govern <b>it</b> .
S134/CSS/T1	<b>The</b> Qur'an emphasizes in numerous places that <b>the</b> cosmos can be and in fact should be <b>the</b> subject of study, for <b>the</b> cosmos was created in truth: <i>He hath created the heavens and the earth with truth (bi'l-haqq)</i> . Also, <i>We created not heavens and the earth and all that is between them save with truth</i> .
S135/ CSS/T1	Consequently <b>the</b> cosmos is intelligible and not incoherent, and God has given man <b>the</b> intelligence to know <b>the</b> truth at all levels of reality.
S136/ CSS/T1	<b>The</b> very term for world in Arabic, namely al-alam, is related to <b>the</b> word for knowledge (al-ilm).
S137/ CSS/T1	<b>The</b> world is that which can be known because God created <b>it</b> with truth (bil-Haqq) and gave us <b>the</b> intelligence to know <b>the</b> truth.
S138/ CSS/T1	Consequently, to study <b>the</b> world is to discover something of <b>that</b> truth by which <b>it</b> was made and which belongs ultimately to God.
S139/ CSS/T1	Theoretically it would be possible to think that <b>the</b> world could have been created by God but not be a subject worthy of study from a religious and also <b>the</b> Islamic scientific point of view, or that it would not even be possible to study <b>it</b> and know <b>it</b> .
S140/ CSS/T1	But <b>the</b> Qur'an insists not only that <b>the</b> world can be studied and known, but that <b>it</b> is worthy of study from <b>the</b> Islamic point of view, and that <b>it</b> is even incumbent upon man to do so without, however, neglecting its relation to God.

S141/ CSS/T1	In numerous verses in <b>the</b> Qur'an man is directed to <b>the</b> phenomena of nature and asked and even ordered to study <b>them</b> .
S142/ CSS/T1	There is in fact a very rich Qur'anic vocabulary relating to <b>the</b> study of <b>the</b> phenomena of nature.
S143/ CSS/T1	<b>Such</b> verbs as yara, yafqahun, yatadhakkarun, ya'qilun, and yalamun are used in different verses with different meanings, alluding to <b>the</b> level and depth of understanding <b>the</b> phenomena of nature.
S144/ CSS/T1	There is implicit in <b>the</b> Qur'an a hierarchy in studying and understanding nature.
S145/ CSS/T1	There is not just one level of knowing or one science of nature but many, ranging from simple observation related to seeing (ru'ya) to intellection (ta'qqul) and in depth knowledge of <b>the</b> essences of things (ilm), which must not under any condition be confused with simple ratiocination any more than one can simply identify Qur'anic ilm with modern science, a sin of which many modern Muslims thinkers are guilty.
S146/ CSS/T1	<b>The</b> Qur'an asserts that God taught Adam the "names" of all things as in <b>the</b> verse <i>And He taught Adam the names, all of them</i> .
S147/ CSS/T1	By names (asma) is not off course meant names in <b>the</b> ordinary sense of <b>the</b> word but essential reality or nature.
S148/ CSS/T1	Man's intellect has been created by God in such a way that <b>he</b> is able to know <b>the</b> essential reality of all things and <b>the</b> power of <b>his</b> knowledge in contrast to even that of <b>the</b> angels has no limit, because <b>it</b> can range from knowledge of <b>the</b> most outward aspect of <b>the</b> reality of an object to its most exalted or inward aspect as <b>it</b> resides in God's knowledge.
S149/ CSS/T1	Human knowledge cannot of course encompass all things, <b>that</b> capacity belonging to God alone.
S150/ CSS/T1	According to <b>the</b> principle of adequation, the faculties of <b>the</b> knower must be adequate to <b>the</b> object to be known.
S151/ CSS/T1	Now, man as seen by Islam has been created in <b>such</b> a manner that there exists within <b>him</b> a hierarchy of faculties ranging from <b>the</b> outward sense to <b>the</b> intellect, through which <b>he</b> is able to know all levels of reality from <b>the</b> low sand pebble to <b>the</b> One, the Absolute, to Whom reference is made in la ilaha illa Llah.

S152/ CSS/T1	Man is also able to know <b>the</b> created order not only on <b>the</b> one level of physical reality but also symbolically on all levels reaching ultimately to <b>the</b> Divine, whose knowledge of all things is <b>the</b> root of <b>their</b> reality.
S153/ CSS/T1	<b>The</b> phenomena of nature can be and are a worthy object of study Islamically speaking, provided <b>they</b> are seen not as facts divorced from higher orders of reality but also as symbols.
S154/ CSS/T1	<b>Their</b> order, harmony, and laws reveal <b>the</b> Omniscience and Omnipotence of God, as well as <b>His</b> Oneness and Wisdom.
S155/ CSS/T1	<b>These</b> phenomena are signs or portents (ayat) of God, with a message that man is able to read if <b>he</b> accepts and understands <b>the</b> message and meaning of <b>those</b> other ayat contained in <b>the</b> revealed Book.
S156/ CSS/T1	That is why <b>the</b> cosmos itself has been called the “macrocosmic Qur’an” or the “Qur’an of the Created Order” (al-Qur’an al-takwini).
S157/ CSS/T1	By virtue of <b>the</b> Qur’anic revelation, man is given <b>the</b> possibility of reading <b>the</b> cosmic text and deciphering <b>its</b> “words” and “letters”.
S158/ CSS/T1	A sign (ayat), however, is always a sign of something <b>other</b> than itself.
S159/ CSS/T1	It is incoherent if considered by itself and as a completely independent order of reality.
S160/ CSS/T1	That is why, while <b>the</b> Qur’an encourages <b>the</b> study of nature, and <b>the</b> remarkable development of <b>the</b> natural and mathematical sciences in Islamic civilization is a direct consequence of <b>the</b> teaching of <b>the</b> Qur’an and Haddith, <b>the</b> sciences of nature envisaged by Islam are not <b>the</b> same as modern science.
S161/ CSS/T1	Since <b>the</b> seventeenth century scientific revolution, modern science has studied <b>the</b> physical aspect of nature as an independent and autonomous domain of reality with fixed laws of <b>its</b> own.
S162/ CSS/T1	<b>The</b> Creator has been cut off from His creation, even in <b>the</b> case of <b>those</b> schools of philosophy of science which still accept <b>the</b> reality of God.
S163/ CSS/T1	<b>The</b> Will of God is seen as being no longer operative in His Creation, nor are <b>the</b> higher levels of reality such as <b>the</b> angelic considered to be of any consequence in the running of <b>the</b> natural world.
S164/ CSS/T1	Moreover, <b>the</b> knowledge of <b>the</b> natural world has become limited to <b>the</b> empirical to the extent that, despite <b>the</b> fact that some of <b>the</b> greatest

	scientific discoveries (such as the laws of planetary motion formulated by Kepler and the theory of special relativity of Einstein) were not at all based on induction and empiricism, there is still constant talk about <b>the</b> scientific method based on observation and ratiocination.
S165/ CSS/T1	In <b>the</b> prevailing philosophies dominant in <b>the</b> West, in whose matrix modern science has for <b>the</b> most part grown during <b>the</b> past four centuries, nature is <b>the</b> subject of study- but merely as an autonomous reality of a purely physical and quantitative order having no relation to higher levels of being, nor to God, except in certain philosophical schools which at least accept God as <b>the</b> Original Cause at <b>the</b> beginning of creation.
S166/ CSS/T1	<b>The</b> knowledge of nature has also been reduced to only one kind of knowledge that soon came to be known as science.
S167/ CSS/T1	<b>This</b> science does study <b>the</b> phenomena of nature but only as facts, and not as ayat of God.
S168/ CSS/T1	<b><u>In contrast</u></b> to <b>this</b> limited view of what constitutes science, Islam has also ordered man to study nature, but not only as fact.
S169/ CSS/T1	<b>It</b> has not limited nature to only its physical aspects nor <b>the</b> means of knowing nature to <b>the</b> empirical.
S170/ CSS/T1	Islam has always encouraged <b>the</b> study of nature, which would include a science of nature similar on a certain level to modern science but not limited in <b>the</b> same manner.
S171/ CSS/T1	Islam has envisaged <b>the</b> possibility of many sciences of nature and has refused to accept a particular science of nature as <b>the</b> science.
S172/ CSS/T1	Moreover, Islam refuses to accept <b>the</b> legitimacy of any science that would study <b>the</b> cosmos in forgetfulness of God.
S173/ CSS/T1	<b>The</b> Qur'an insists that <b>the</b> world of creation is worthy of study, but <b>it</b> is worthy because at all levels of <b>its</b> activities and processes and in <b>its</b> very existence nature reveals <b>the</b> Wisdom of God and brings about in man that sense of wonder and awe <b>that</b> contribute to <b>his</b> spiritual perfection.
S174/ CSS/T1	All science of nature are legitimate and in fact encouraged, provided <b>they</b> reflect something of <b>that</b> truth (haqq) with which <b>the</b> world was created, and that <b>they</b> enable man to contemplate in <b>the</b> created order <b>the</b> Wisdom of God and to use <b>the</b> science gained thereby in <b>His</b> service.



S175/ CSS/T1	No science can be acceptable to Islam that does not in some way remind man of <b>the</b> Wisdom of <b>the</b> One from whom everything issues and to whom everything returns.
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**APPENDIX A2: TRANSCRIPT - THE UNIVERSE AS A SYSTEM: IBN SINA'S  
COSMOLOGY REVISITED(ARTICLE 2)**

<b>S1/GPC/T2</b>	Drawing on Aristotle's cosmology and Ptolemaic astronomy, Ibn Sina views the universe as consisting of nine concentric spheres contiguously nested, one within the other, from the lowest sphere of the moon to the outermost starless sphere.
<b>S2/GPC/T2</b>	These spheres are thought to be concentric because they seem to share a common center, which is the center of the universe, taken as coincident with the earth's center.
<b>S3/GPC/T2</b>	On this model, each of the seven known 'wandering stars' or planets (al-kawakib al-mutahayyirah) – namely, the moon, the two inner planets (Mercury and Venus), the sun, and the three outer planets (Mars, Jupiter, and Saturn)- and the 'fixed stars' (al-thawabit) are assumed to be attached to eight solid but transparent spheres that carry them as they revolve around the earth.
<b>S4/GPC/T2</b>	There is a ninth, outermost sphere (kurah kharijah 'anhamuhitah), which defines the edge or boundary of the universe and supposedly contains no star (ghayr mukawkabah), posited to explain the daily motion of the heaven, whereas the motion of the eighth sphere (that of the fixed stars) is said to be due to the precession of the equinoctial points (nuqtata al-I'tidal).
<b>S5/GPC/T2</b>	Each of these spheres, according to Ibn Sina, is governed by an intelligence and a soul, which are respectively the remote cause and proximate principle of their motion.
<b>S6/GPC/T2</b>	Ibn Sina's model rests on four fundamental assumptions, namely:
<b>S7/GPC/T2</b>	(1) that the universe is one in number;
<b>S8/GPC/T2</b>	(2) that it is finite in extent and spherical in shape;
<b>S9/GPC/T2</b>	(3) that it has a center; and
<b>S10/GPC/T2</b>	(4) that the earth lies at its center.
<b>S11/GPC/T2</b>	Let us first consider the third and fourth assumptions.
<b>S12/GPC/T2</b>	Ibn Sina argues for the central position of the earth by means of a

	logical argument which essentially derives from the Aristotelian physical theory of four elements (earth, water, air, fire) and their natural motion and place.
<b>S13/GPC/T2</b>	For him as for Aristotle, any motion of natural bodies (that is, anything capable of motion and change, whether animate or inanimate) is either simple or composite, natural or unnatural.
<b>S14/GPC/T2</b>	Simple motion, which belongs to simple bodies (as opposed to composite bodies), is either rectilinear (mustaqimah) or circular (mustadirah).
<b>S15/GPC/T2</b>	Simple rectilinear motion is either motion away from the centre, motion toward the center, or motion about the center.
<b>S16/GPC/T2</b>	Motion away from the center toward the cosmic circumference, termed upward motion, is natural to light bodies, whereas motion toward the center, called downward motion, is natural to heavy bodies.
<b>S17/GPC/T2</b>	The motion of a body is said to be natural (tabi'iyah) if it drives the moving body toward the place where it will rest 'naturally', that is, by nature and not by an external force, whereas unnatural motion is that which is due to some external force contrary to the thing's nature- "nature" being identified as an intrinsic principle of being moved and being at rest.
<b>S18/GPC/T2</b>	Since the sub-lunar elements (anasir) are natural simple bodies (basait), their motions must be both simple and natural, but also rectilinear and not circular because, in the absence of any hindrance, each of the elements will by nature either move straight up or straight down, seeking its natural place.
<b>S19/GPC/T2</b>	By 'natural place' (hayyiz tabi'i) is meant the place to which a natural body is moved or inclined to move and where it will rest naturally, namely, the cosmic center for heavy bodies, and the circumference for light ones.
<b>S20/GPC/T2</b>	given all these principles, it is reasonable for Ibn Sina to conclude that the earth must lie at the center of the universe.
<b>S21/GPC/T2</b>	This is so because the earth, being the heaviest of all the elements, must naturally move toward the center and cannot be placed anywhere but where it belongs by nature.
<b>S22/GPC/T2</b>	Indeed, even if at any time it should not have been at the center of the cosmos, it would have been bound to reach it long ago by natural rectilinear motion which, because of the finiteness of directions (tanahi

	al-jihat) within the universe, cannot be perpetual.
<b>S23/GPC/T2</b>	And now that it is situated in its natural place, the earth must be at rest and motionless.
<b>S24/GPC/T2</b>	That is to say, given its present natural position, the earth cannot have rectilinear motion; nor can it revolve about an axis at the center of the universe, because circular motion belongs only to celestial bodies.
<b>S25/GPC/T2</b>	Interestingly, Ibn Sina discards other arguments for the geocentric thesis on the grounds that they all share one wrong assumption, namely, that “the earth is forced to stay at the center (al-ard maqsurah ‘ala al-qiyam fi al-wasat).”
<b>S26/GPC/T2</b>	For how, he asks, can a thing be forced [to remain somewhere] except when it is not in its natural place?
<b>S27/GPC/T2</b>	Thus Ibn Sina rejects, for example, the theory which claims that the earth stays as it is and does not fall downward because it floats on water, or that it remains stable by virtue of its dryness.
<b>S28/GPC/T2</b>	For still can one ask, Ibn Sina contends, the further question of what then supports the water.
<b>S29/GPC/T2</b>	He also rejects the idea that the earth is at rest because it is like a cylinder in shape (tabliyyat al-shokl), having an extended plane surface top and bottom (musattahat al-qa’r munbasitah).
<b>S30/GPC/T2</b>	Equally unacceptable to him is the idea that the earth has a ball-like shape (kuriyyah) and that it stays aloft and motionless, not supported by anything but staying where it is because it is pulled to every direction with the same force by the celestial sphere and therefore remains at the same distance from everything.
<b>S31/GPC/T2</b>	That this cannot be the case is explained by Ibn Sina in the following passage:
<b>S32/GPC/T2</b>	As we can see, here and in the subsequent passages Ibn Sina emphasizes clearly that it is neither ‘by force’ (qasran), nor ‘by choice’ (ikhtiyaran), nor ‘by chance’ (bi al-bakht), but rather ‘by nature’ that the earth stays where it is, at rest at the center of the universe.
<b>S33/GPC/T2</b>	It cannot be due to some coercive factor, he says, because it is impossible for the sphere surrounding the earth to change the earth’s inclination (mayl) by repulsion (dafan).
<b>S34/GPC/T2</b>	For if it were possible, then a piece of earth falling toward the center would move less quickly the closer it is to the earth, because the speed of a body moved by force diminishes the farther away it is from moving agent.
<b>S35/GPC/T2</b>	Nor can we say that it chooses to be so, because being inanimate the earth cannot have choice or will of its own, but simply behaves in accordance with its nature.
<b>S36/GPC/T2</b>	Ibn Sina also rejects the view that the earth owes its stability to chance on the grounds that what happens by chance cannot be perpetual and is itself due to some cause.
<b>S37/GPC/T2</b>	As we can see, all these arguments for the stationary and central position of the earth ultimately rest on his theory of mayl which says, inter alia, that “every body will lose its inclination once it reaches its natural place.”

<b>S38/GPC/T2</b>	Turning to the idea that the universe is finite in extent and spherical in shape, having the outermost, starless sphere as its circumference and the earth at its center, Ibn Sina seems content with making only a brief argument.
<b>S39/GPC/T2</b>	For him, as for Ptolemy whose <i>Almagest</i> he paraphrases, the sphere is the only figure most fitting for circular motion such as that of celestial bodies, and is the noblest ( <i>ashraf al-ashkal</i> ), most encompassing ( <i>azyaduha ihatatan</i> ), and most perfect because of its unique form limited by a single surface.
<b>S40/GPC/T2</b>	Most importantly, it is the only one which, by rotating on its axis, can move within its own limits without change of place.
<b>S41/GPC/T2</b>	Indeed, sphere is among bodies as the circle is among plane figures; it is the most uniform of all solid figures, since it is equidistant every way from centre to extremity.
<b>S42/GPC/T2</b>	Now, according to Ibn Sina, one can infer the universe's sphericity from the circular motion of the heavenly bodies.
<b>S43/GPC/T2</b>	The cosmic sphere cannot be infinite, because an infinite body is logically impossible.
<b>S44/GPC/T2</b>	Being spherical, the universe is said to exhaust all space, so that there exists neither body nor place nor void outside this all-embracing cosmic sphere.
<b>S45/GPC/T2</b>	This view has led Ibn Sina to maintain, paradoxically, that the universe is not in a place, since 'place' is defined as that in which a body is found and that which contains or surrounds the body – a definition which doubtless presupposes the existence of at least two contiguous bodies, 'place' being the innermost surface of the containing body in direct contact with the contained body, and implies that no two bodies can occupy one and the same place at the same time.
<b>S46/GPC/T2</b>	Now it is easy to see why the universe or heavens as a whole cannot be said to be in place: the whole body (that is, the universe) is surrounded neither by another body nor by a void, since it is assumed that there is no such thing and there exists no material body beyond the universe to serve as its container.
<b>S47/GPC/T2</b>	To be sure, denial of a place to the last, outermost sphere constituting the whole universe is a consequence forced upon Ibn Sina in order to avoid an infinite regress of material places; for if the outermost sphere is contained by another sphere, the latter, in turn, would require a further containing sphere, and so on ad infinitum, a process that would inevitably lead to the assumption of an infinite universe.
<b>S48/GPC/T2</b>	Not only the whole cosmos is believed to be spherical but also the earth is thought of as having a ball-like shape.
<b>S49/GPC/T2</b>	That the earth cannot be flat almost necessarily follows from the theory of elemental motion according to which the heavy element earth is naturally inclined toward the center of the universe, while light elements by nature tend to move up toward the circumference.
<b>S50/GPC/T2</b>	Thus, supposing that the earth was originally in a state of dispersal, when the dispersed particles of earth traveled to the center (i.e. to the earth), they would naturally impinge upon one another and form a spherical body, because any anomalies ( <i>tadaris</i> ) would be self-correcting: a lump on the sphere would be heavier than the counter-balancing portions of it, and so it would continue to press toward the center until all was in balance, just like the case of water seeking its

	own level, although such a process would no doubt take a very long time, being gradual, and hence- given the earth's dryness and hardness – hardly noticeable.
<b>S51/GPC/T2</b>	Indeed, for Ibn Sina the sphere is just the natural shape (shakl tabi'i) of simple bodies, which is why each of the elements is supposed to seek and stay at their proper natural place, forming its own sphere and surround one another.
<b>S52/GPC/T2</b>	Furthermore, given its central position and being mostly composed of the heaviest element, the earth cannot but be spherical, for only a spherical body could be equidistant (fi sawa' al-wasat) from all the points on the cosmic circumference.
<b>S53/GPC/T2</b>	The sphericity of the earth can also be inferred from the curved, crescent-like (hilar) or even sometimes circular shadow which the earth casts on the moon's surface no matter at what position it passes the moon.
<b>S54/GPC/T2</b>	Added to that is the observation that the portion of the sky that is visible changes as one moves even quite a short distance north or south on the earth's surface.
<b>S55/IMU/T2</b>	Along with Plato and Aristotle, Ibn Sina denies the existence of other universes apart from our own.
<b>S56/IMU/T2</b>	For him there cannot be more than one universe, and he adduces two arguments in support of this view.
<b>S57/IMU/T2</b>	First, he says, if there were many universes ( awalim kathirah) then a given body (say, water) would have several natural places differing only numerically yet placed and scattered in diverse directions.
<b>S58/IMU/T2</b>	The body would consequently be subject to contrary natural motions (simultaneously towards and away from the centre, as some would move downward while others upward).
<b>S59/IMU/T2</b>	Since natural motions and natural places are interdependent, indetermination of motion would imply indetermination of place.
<b>S60/IMU/T2</b>	This would, moreover, result in a contradiction, because placed would be determinate (since they would form a universe) and yet, at the same time and in the same respect, also indeterminate (since they would be the goals of contrary motions).
<b>S61/IMU/T2</b>	Secondly, if there were many universes, then there would be more than one center.
<b>S62/IMU/T2</b>	But such a situation is impossible because, Ibn Sina argues, the earth of each universe, each being the centre, must be virtue of their similar nature eventually gather in one place, forming a new center; there is no reason why they should not do so ( hadha al-ijtima mimma la mani a lahu anhu fi tab'ih), for one and the same nature cannot be separated and differentiated (fa inna al-tabi'ah al-wahidah al-mutashabihah la taqtadi al-iftiraq wa al-tabayun).
<b>S63/IMU/T2</b>	That is to say, if there were another universe, its elements would be one and the same as those in our universe; and since all elements are essentially the same every-where and so are moved toward their respective natural places, each element would be moved to the center of our world- which is impossible because, from the point of view of its own universe, that earth would be moved upward (that is, away from its center), just as the earth from our universe would be moved upward if moved toward the center of another cosmos.

<b>S64/IMU/T2</b>	In short, the assumption of more than one universe entails not only denial of the identical natures of the elements and the oneness of their respective motions throughout the different universes, but also denial of place as the principle rendering the cosmos determinate in respect to direction- that is, in respect to “up” “down,” and “middle.”
<b>S65/IMU/T2</b>	For the natural motion of each element is defined in relation to its place in the universe; and it is either away from the center and toward the circumference, or about the center.
<b>S66/IMU/T2</b>	In other words, if there were many universes existing in an infinite space where there is neither center nor circumference, there would be no motion, since bodies would have no place to serve as the goal of their motion and one could not point to one direction as up and another as down.
<b>S67/CNM/T2</b>	Before dealing with Ibn Sina’s theory of celestial motions, it is worth discussing his views on the nature of heavens.
<b>S68/CNM/T2</b>	According to Ibn Sina, heavenly substances differ fundamentally from earthly things in many respects.
<b>S69/CNM/T2</b>	First of all, celestial things are simple in that they are not composite, and, second, they are made of a unique simple substance called aether (athir) which, unlike the four sublunary elements, is eternal and changeless in the sense that it is neither generated nor destructible (la yaqbal al-kawn wa al-fasad).
<b>S70/CNM/T2</b>	This is because generation and destruction apply only to composites- i.e., things which contain contrary qualities, and represent change into and out of opposites, as will be explained below. Indeed, this so-called ‘fifth element’ (al-jism al-khamis or al-tabī’ah al-khamisah, the quinta essential of the medieval scholastics) is immune not only to the process of generation and destruction (substantial change) but also to other kinds of change, such as locomotion (which entails movement to natural place in search of rest), alteration (qualitative change), and growth and diminution (quantitative change), since all these changes imply contrary qualities, whereas heavenly bodies are simply devoid of contraries (lays laha’ unsure ayy shay’ qabil li l-diddayn).
<b>S71/CNM/T2</b>	The simple celestial substance (the aether), Ibn Sina tells us further, moves only in a circle, circular motion being the only simple motion natural to it on the grounds that the other simple motion (rectilinear) is natural and belongs to the four simple terrestrial elements (fire, air, water, earth) or anything composed of them in which one element predominates (bi hasab al-ghalib).
<b>S72/CNM/T2</b>	For given that each of the simple (terrestrial) bodies has only one natural motion (e.g. either upward or downward) and since a motion can, if at all, have only one contrary, the conclusion is drawn that circular motion (which, however, has no contrary) cannot be the unnatural motion, let alone be the natural motion of one of the four elements; rather, it should belong to another simple element, namely the ‘fifth body’.
<b>S73/CNM/T2</b>	Moreover, since it has no inclination (mayl) for rectilinear motions, the heavenly substance is neither heavy nor light, whether actually or potentially, for heaviness implies downward motion towards the centre, and lightness implies motion away from the centre.
<b>S74/CNM/T2</b>	Above all, the reason why the celestial element deserves all these properties lies in the fact that it is ever actual, its matter being always

	attached to its form (mawqufah ala suraliha), its form having no contrary and its properties unchanged.
<b>S75/CNM/T2</b>	He elsewhere remarks that :
<b>S76/CNM/T2</b>	it should be noted that the term “nature” as used in the passage just cited refers to the principle of any motion, rest and other perfections (kamalat) which every natural body may have within and by itself.
<b>S77/CNM/T2</b>	As ibn Sina explains it, ‘nature’ is the first of the three kinds of powers (quwa) which pervades the body and preserves its perfections (e.g., its shape, its natural place, and its action).
<b>S78/CNM/T2</b>	It is an internal source or cause of being moved and being at rest, that within things by virtue of which they move (taking ‘motion’ in its broadest sense which includes all kinds of change) and come to rest.
<b>S79/CNM/T2</b>	Whereas for living beings the intrinsic mover is their soul (nafs), for the elements and other non-living things it is the inclination (mayl) of each to reach and rest in its proper, natural place.
<b>S80/CNM/T2</b>	Thus nature is identified with soul as well as inclination in the case of animals (ensouled bodies) and inanimate objects respectively.
<b>S81/CNM/T2</b>	But in both cases nature expresses itself in the thing’s motion, motivating the thing to actualize its potentialities and achieve its existential purpose.
<b>S82/CNM/T2</b>	Let us now turn to Ibn Sina theory of celestial motions.
<b>S83/CNM/T2</b>	To begin with, Ibn Sina rejects Aristotle’s quite complicated theory according to which the motion of celestial spheres is due to fort-seven or fifty-five unmoved movers, the first of which, identified as theos, is said to be directly responsible for moving the outermost sphere of the fixed stars.
<b>S84/CNM/T2</b>	This is to say, the stars and the planets are rotating because they are attached in some way to a series of rotating spheres, each of which is moved by an unmoved movers.
<b>S85/CNM/T2</b>	Instead, like Alexander of Aphrodisias before him, Ibn Sina adopts the simplified version of the theory, positing only nine spheres, while at the same time appropriating the remaining Aristotelian views: that the so-called Prime Mover, being both the efficient and final cause in the sense of an object of both love and thought (to orekton kai to noeton), produces motion while all other things move by being moved, and that the first moving sphere, which embraces all the orbs involved in the daily motion, seeks to become as much like the Prime Mover as possible and thus wishes to come to rest in imitation of the First Unmoved Mover.
<b>S86/CNM/T2</b>	Nevertheless, since it is impossible for any celestial sphere to acquire such a state of perfection, the first moving sphere remains in a continuous, eternal state of rotational motion as it strives for its unattainable goal.
<b>S87/CNM/T2</b>	The celestial motion is eternal, partly because of its circularity- since it is assumed that a body which moves in a circle is perpetual and is never at rest- but mainly by virtue of the eternal, unchanging First principle of Being (he arkhe kai to proton ton onton akineton). Ibn Sina position is explained in the following passage:
<b>S88/CNM/T2</b>	Crucial to understanding the whole theory is the general principle, first enunciated by Aristotle and adopted by Ibn Sina, that “everything that



	moves is moved by some agent.’
<b>S89/CNM/T2</b>	Specifically, this means that all natural bodies owe their motion to a certain cause or principle, which can be either intrinsic (andhatiha) or extrinsic (bi-sabab kharij).
<b>S90/CNM/T2</b>	The external factor capable of producing and/or obstructing motion in a body is called ‘force’ (qasir), and its effect ‘violent’ or unnatural motion.
<b>S91/CNM/T2</b>	The intrinsic principle, on the other hand, is further classified into that which brings about ‘voluntary’ motion (bi iradah), and that which causes involuntary but non-violent (and hence natural) motion (la’an iradah wa la an taskhir qasir), the former being identified as soul (nafs), the latter as nature (tabiah).
<b>S92/CNM/T2</b>	In short, if anything is in motion, it must be moved by something else: either by nature, by soul, or by force.
<b>S93/CNM/T2</b>	These assumptions entail that nothing is, strictly speaking, self-moved.
<b>S94/CNM/T2</b>	Indeed, self-motion is impossible because motion broadly defined is the first perfection (kamal awwal) or actualization of a potency (quwwah), a process that requires an agent (namely, the cause or principle of motion) which itself must be actual and perfect.
<b>S95/CNM/T2</b>	Thus, the moving principle must already be in the state at which the motion of the patient is aimed because otherwise we would have an infinite series of such agents, which is absurd.
<b>S96/CNM/T2</b>	It is clear that each moving object presupposes some cause (illah) which sets and sustains it in motion.
<b>S97/CNM/T2</b>	However, since the series of such causes cannot regress indefinitely, therefore, the motion of each moving object must be ultimately sustained by a first cause, which moves the rest but itself is unmoved.
<b>S98/CNM/T2</b>	On Aristotle’s account, there exist no less than fifty such unmoved movers, whereas Ibn Sina recognizes only ten, which he identified as separate intelligences (uqul mufariqah), apart from the First one (al-Aql al-Awwal).
<b>S99/CNM/T2</b>	According to Ibn Sina, the circular motion of celestial bodies cannot be natural, because natural motion can occur only when a body is located elsewhere from its proper place.
<b>S100/CNM/T2</b>	But celestial bodies are and have always been in their natural place.
<b>S101/CNM/T2</b>	A second reason is that natural motion is aimed at rest (li ajli talab sukun), which is characteristic of rectilinear motions, whereas the circular motion observed in celestial bodies is perpetual.
<b>S102/CNM/T2</b>	However, such a motion cannot be said to be unnatural or enforced either, since it is assumed that there cannot be any force greater than that of celestial bodies themselves which could move them contrary to their nature.
<b>S103/CNM/T2</b>	Now, since the circular motion of celestial spheres is neither by nature nor by constraint, it must originate from the voluntary power (quwwah iradiyyah) of ensouled bodies or living beings.
<b>S104/CNM/T2</b>	This view seems to contradict his statement elsewhere that the celestial bodies move circularly by nature (bi al-tiba).
<b>S105/CNM/T2</b>	Nevertheless, one need only to recall the distinction Ibn Sina maintains between the nature of terrestrial elements (or bodies composed thereof)

	and that of the fifth element that constitutes celestial bodies.
<b>S106/CNM/T2</b>	Nothing could be more natural to such simple but animated boides as the heavenly spheres than circular motion.
<b>S107/CNM/T2</b>	Whereas in the case of bodies of the sublunary region ‘nature’ and ‘soul’ are differentiated, in the case of celestial bodies they are identical.
<b>S108/CNM/T2</b>	Since the heavenly bodies are simple and changeless, oonly circular and everlasting motion is proper to them.
<b>S109/CNM/T2</b>	However, since they are believed to be ensouled and alive ( hay dhu nafs), their motion is, strictly speaking, voluntary.
<b>S110/CNM/T2</b>	At best, one could say with Ibn Sina that the celestial motion, apart from being intellectual in a sense, is ‘quasi-natural’ (ka’annahu tabi’iyyah).
<b>S111/CNM/T2</b>	Thus, while their simple circular motion is due to their soul, the perpetuity of the motion is due to their intelligence; the former serves as the intermediate cause of motion.
<b>S112/CNM/T2</b>	It is their intelligence, whose sole concern it is to attain to the Pure and True Good (al-khayr al-mahd al-haqiqi) and to contemplate the First Principle and to strive become like Him, that actually causes their soul to continuously revolve the celestial body around it, and always in the same way.
<b>S113/CNM/T2</b>	For intellectual contemplation alone is not accompanied by motion; nor are mere desire and volition sufficient to produce motion.
<b>S114/CNM/T2</b>	The celestial soul, we are told, must not only will and comprehend the objective of its motion, but also has to ‘imagine each one of the successive motions’ (tatakhayyal al-aynat al-juz’iyyah) that are required to satisfy its eternal longing for Pure Intelligence, its desired object, just as a man who has resolved to travel from one place to another must know his destination and imagine each one of the successive steps that are required for him to cross the distance.
<b>S115/CNM/T2</b>	Indeed, according to Ibn Sina, there is a great affinity between the celestial and human souls in terms of capacities and inclination.
<b>S116/CNM/T2</b>	The human souls have three kinds of desire (shaq; ishtiyaq) or love (ishq), namely: appetite (shahwah), passion (ghadab), and free will (iradah) or rational choice (ikhtiyar), corresponding to the soul’s three faculties – the vegetative, the anima, and the rational.
<b>S117/CNM/T2</b>	In the case of the heavenly bodies, however, since they are said to be changeless and eternal, one can only ascribe to them intellectual desire and rational will, because the two lower kinds of desire are appropriate only for the changing and perishable beings of the sublunary region.
<b>S118/CNM/T2</b>	Thus, despite their seemingly mechanical movements, celestial substances do exercise free choice precisely because their souls, being their direct moving principle, are endowed with eternal will that is ever renewed.
<b>S119/CNM/T2</b>	The point is summarized neatly in the Risalah fi al-ishq as follows:
<b>S120/CNM/T2</b>	It should be added that unlike that of terrestrial animals, the celestial intelligences, being the remote and final cause of their motion, are possessed of infinite power (quwwah ghayr mutanahiyaH), pure and wholly free from all the determinations which belong to matter.
<b>S121/CNM/T2</b>	Otherwise they would be subject to change and hence could not be eternal.

<b>S122/CNM/T2</b>	The motion of the celestial spheres cannot be due to its own innate power because the heavens as a whole, being finite body, cannot contain the infinite power capable of causing and sustain its eternal motion over an infinite time.
<b>S123/CNM/T2</b>	Since an infinite power cannot be in a body, Ibn Sina concludes that the power which causes the eternal, circular motion of the heaven (and which is infinite in the sense of exerting its action during an infinite time) must be incorporeal, separated from matter; that is, Intelligence.
<b>S124/CNM/T2</b>	One might wonder why circular motion is deemed most appropriate for the celestial bodies.
<b>S125/CNM/T2</b>	To this Ibn Sina has the following reasons.
<b>S126/CNM/T2</b>	First of all, circular motion is prior (awla bi al-taqaddum) and superior one (awla bi al-sharaf) to rectilinear motion, because it alone is numerically one (wahid bi al-adad), well-balanced (mustawiyah), and most prior and most complete of the two simple motions (aqdam wa atamm al-basitayn).
<b>S127/CNM/T2</b>	In contrast to circular motion, a rectilinear motion is – if the distance is finite and should the motion turn back- in fact a composite of two contrary motions, while if it does not turn back and stops at a terminal point, then the motion is incomplete.
<b>S128/CNM/T2</b>	On the other hand, if we suppose the distance is infinite (which is impossible, given the finitude of the cosmos) and the motion does not turn back but goes on to infinity, then it is incomplete.
<b>S129/CNM/T2</b>	Indeed, for Ibn Sina, there is no such thing as an actually infinite straight line, and even if there were, it could not be traversed by anything in motion, for the impossible does not happen and it is impossible to traverse an infinite distance.
<b>S130/CNM/T2</b>	Furthermore, circular motion is considered complete because one cannot add to it without repeating its course (idha tammat al-dawrah fala yuzad alayha bal takarrara), whereas rectilinear motion can always be added to and extended infinitely – potentially, of course, without such a consequence.
<b>S131/CNM/T2</b>	Finally, given the eternity of celestial substance, only circular motion is proper to it, precisely because it is ceaseless and perpetual, since in circular motion every destination is a fresh starting-point (idha tammat dawrah ibtada'at min ra'sin).
<b>S132/CNM/T2</b>	On Ibn Sina account, no motion is eternal except the celestial, since in all rectilinear motions rest must occur once the moving body arrives at its proper, natural place; and with the occurrence of rest the motion has perished.
<b>S133/CNM/T2</b>	A further reason is that circular motion has no contrary, which is not the case with simple rectilinear motions.
<b>S134/CNM/T2</b>	Unlike circular motions, rectilinear motions are contraries of each other, since they set out from opposite starting-points and proceed in opposite directions (upward and downward).
<b>S135/CNM/T2</b>	Motions around the circumference of a circle, on the other hand, even if in opposite directions, are nevertheless motions from and to the same point.
<b>S136/CNM/T2</b>	Two motions are said to be contrary to each other only if they start from and end in two opposite points (fa al-harakat al-mutadaddah hiya allati tataqabal atrafuha).

<b>S137/CNM/T2</b>	While he appears to accept Ptolemy's theory of epicycles in order to account for the retrograde motions of the 'wandering stars' in the course of their revolutions around the earth, Ibn Sina adopts Alexander's view in pointing out the reason behind those irregular and complex motions of the planets.
<b>S138/CNM/T2</b>	To recall, ancient astronomers in the time of Plato had discovered that the planets' apparent motions are actually not uniform; they noticed that the circular course of each planet is at certain times interrupted by a movement in a loop: the planet retards its movement and turns back, moving for a certain while in the opposite direction; then it stops and once again advances beyond the turning-point, and so on.
<b>S139/CNM/T2</b>	As is well-known, Ptolemy proposes that a planet's motion may be represented geometrically either by an eccentric circle (falak Kharij) possessing a center other than the earth's center; or if the earth's center is to be retained, an epicycle (falak tadwir) must be added to the circumference of the deferent circle (falak hamil); or finally, some combination of eccentric and epicyclic circles could be employed.
<b>S140/CNM/T2</b>	Having accepted this solution, Ibn Sina gives a further explanation: whereas the regular, daily motion of the planets from east to west is due to the desire felt by their souls for a common beloved (ma'shuq mushtarak), namely the First Principle, and is but the mechanical effect of the motion of the outer most, first moving sphere, their other irregular motions reflect their having different principles of motion as well as different objects of longing after the First- that is, because each of them is guided by its own intelligence.
<b>S141/CNM/T2</b>	As one might notice, there seems to be a contradiction in the foregoing account.
<b>S142/CNM/T2</b>	On the one hand, it is said that celestial bodies are changeless, while on the other hand we are told that they do nevertheless move, albeit with a circular motion.
<b>S143/CNM/T2</b>	The difficulty arises because motion is defined and understood as equivalent to if not synonymous with change.
<b>S144/CNM/T2</b>	How does Ibn Sina explain this?
<b>S145/CNM/T2</b>	It is true that since they lack the primary contrary qualities (hot, cold, dry, moist) that are indispensable for manifold and continuous changes, celestial bodies cannot be said to generated or destructible any more than they undergo change in terms of quality or quantity, for they have always been in the same state, as astronomers have recorded from the earliest times.
<b>S146/CNM/T2</b>	So, it is argued, we have good reason to believe that celestial bodies do not move or pass from one quality to another and that they seem to continuously remain as they are.
<b>S147/CNM/T2</b>	But what about their motions?
<b>S148/CNM/T2</b>	according to Ibn Sina, the motion of celestial bodies, far from being locomotion or change of place, merely entails positional changes or motion in position (harakah fi al-wad), which allows the heaven as a whole to remain where it is while its parts move and change their different positions. As he explained in the following passage:
<b>S149/CNM/T2</b>	It is interesting to note that this idea of positional change is found nowhere in Aristotle's works.

<b>S150/CNM/T2</b>	Whether Ibn Sina got it from some no longer extant Arabic commentaries on Aristotle's Physics is difficult to ascertain given our present-day knowledge.
<b>S151/CON/T2</b>	Ibn Sina envisages a universe that is one in number, finite in extent, and spherical in shape.
<b>S152/ CON/T2</b>	The cosmos is divided into two realms: first, the supra-lunar region of eternal, immutable, ungenerated, and incorruptible celestial spheres, and, second, the sublunar region of the four elements subject to generation and corruption.
<b>S153/ CON/T2</b>	On this model, the universe is structured as a set of nested spheres, all centered upon the center of the universe, which coincides with the earth's center.
<b>S154/ CON/T2</b>	Nearest the center are the sublunary spheres of earth, water, air, and fire. It is within these spheres that all fundamental changes involving the elements occur, such as locomotion, alteration, growth and diminution, and generation and corruption.
<b>S155/ CON/T2</b>	Beyond those four central spheres are the nesting crystalline solid but transparent spheres made of a fifth element, aether, that carry around and move the celestial bodies, namely the moon, the sun, all the planets, and the fixed stars.
<b>S156/ CON/T2</b>	Ibn Sina corroborates his theses with a set of argument, mostly a priori in kind and largely derived from the Aristotelian physical system.
<b>S157/ CON/T2</b>	The geocentric thesis, the arrangement of the spheres, the immobility and spherical shape of the earth, and the impossibility of other universes similar to ours are all explained in terms of Aristotelian theories of natural and forced motions, simple and composite motions, and circular and rectilinear motions.
<b>S158/CNM/T2</b>	Ibn Sina differs from Aristotle, however, when it comes to the metaphysical question as to what causes the celestial motions.
<b>S159/ CON/T2</b>	Whereas Aristotle posited forty-seven or fifty-five unmoved movers, ibn Sina not only reduced the number into one single unmoved mover for all, but also gives a non-Aristotelian explanation for celestial phenomena from a religious point of view, saying that the circular movement of celestial spheres is meant for glorification (tasbih) and is due to Divine Command (li amr Allah).

### APPENDIX A3: TRANSCRIPT – JIHAD AND TERRORISM (ARTICLE 3)

S1/INT/T3	The contemporary international relations are beset with the phenomenon of “international terrorism” widely believed to be closely associated with the Islamic concept of jihad – holy war (Booth and Tim; Ondudiwe).
S2/INT/T3	This phenomenon has become a global concern of international and state security.
S3/INT/T3	Global, regional, or inter-state relations are being reshaped surrounding policies regarding international terrorism.
S4/INT/T3	The concept has increasingly gained a particularistic identity within Islam due to the multiplicity of terrorist activities around the world during the past few years carried out by civilian Islamic groups such as Al-Qaeda, allegedly in the name of Islamic jihad.
S5/INT/T3	The identical relationship between international terrorism and Islam generated a common belief, at least in the West, that anything Islamic deems to have terrorist or violent connection.
S6/INT/T3	The situation is further aggravated by the fact that these groups frequently legitimize their terrorist activities by the Islamic concept of jihad.
S7/INT/T3	As such the concept of jihad, a most widely misunderstood one, is now squarely equated with terrorism (Phares; Bostom; Gerges; Cook).
S8/INT/T3	Recent Islamic scholarship also tends either to avoid the usage of the concept jihad or is increasingly de-politicizing its traditional meaning (Moten and Islam; Abu Sulayman).
S9/INT/T3	Similarly, Islamic political movements or parties in the Muslim countries are also consciously de-emphasizing its importance.
S10/INT/T3	Is jihad necessarily a terrorist dogma?
S11/INT/T3	What are its moral philosophies that inspire a “terrorist” agenda?
S12/INT/T3	The present understanding of international terrorism in relation with the concept of jihad requires a re-examination of the concept and its relevancy to the contemporary international system.
S13/INT/T3	The aim of this article is to analyze the concept of jihad and to offer an alternative explanation of it as understood in Islam.
S14/INT/T3	The central idea is that jihad is not essentially a negative concept; rather it is a universally humane and positive concept.
S15/INT/T3	Understanding of jihad as a holy war or the popular perception that it is essentially a militant means to combat infidels confines the concept too narrowly within a militaristic domain.
S16/INT/T3	Such a perception of jihad, however, is only a secondary connotation that overshadows its fundamental philosophy.
S17/INT/T3	The main objective of Islam is to eradicate anti-social elements that are harmful to human society.
S18/INT/T3	Such elements could be of various natures such as political oppression or injustice, economic exploitation, moral decadence, social crimes, administrative discrimination and corruption, environmental degradation and threats, and military brutality and oppression.
S19/INT/T3	Islam uses the concept of jihad as a value-based “ultimate effort” (the

	literal meaning of jihad) to eliminate these harmful elements in order to make human society safer and more peaceful.
S20/INT/T3	Jihad provides moral sanction to fight against anything unjust and threatening for human society.
S21/INT/T3	This is the fundamental philosophical objective of the concept of jihad.
S22/INT/T3	However, during the early period of Islamic expansion (622-750 CE), the term gained extensive legitimacy in military use, which remains prevalent until today.
S23/INT/T3	This article presents these alternative views of jihad through a number of arguments.
S24/INT/T3	First, the concept of jihad contains a universal humanistic philosophy that is far more important than its outer meaning of holy war.
S25/INT/T3	Second, the concept of jihad has emerged from the classical legalistic confinement of the past into a universal Islamic foreign policy tool in the modern Islamic discourse.
S26/INT/T3	And finally, the humane aspect of the concept has the potential to act as an international regime at the systemic level to fight a number of global threats.
S27/TPP/T3	Jihad is a concept that is understood today as equivalent to terrorism.
S28/TPP/T3	It gives an image of ferocity, religious dogmatic frenzies, and zealot fanaticism.
S29/TPP/T3	It is understood as an Islamic religious policy of offensive war against non-believers that inspires killing of non-Muslims in the name of God.
S30/TPP/T3	Jihad is the moral dogmatic foundation of fundamentalist Islam.
S31/TPP/T3	This perception of jihad, however, is not recent.
S32/TPP/T3	From the time of the Crusades during the eleventh and twelfth centuries, jihad has been understood in a polemical sense (Dajani-Shakil and Messier; Vryonis).
S33/TPP/T3	The military offensives in the mediaeval era by the Muslim rulers against the European Christians were often labeled as jihad or holy war (Johnson; Kelsay and James).
S34/TPP/T3	During the colonial periods, jihad was used by Islamic groups to resist the colonial domination (Rudolph 1979).
S35/TPP/T3	After the Second World War, a number of resistant movements emerged in the Arab world to defend the cause of the Palestinian people.
S36/TPP/T3	These movements usually legitimized armed attacks and terrorist activities by the Islamic concept of Jihad.
S37/TPP/T3	The most popular use of jihad was seen in the Afghan resistant movements against the Russian occupation of Afghanistan during the 1980s.
S38/TPP/T3	From the 1990s onward, jihad became internationally known as Islamic terrorism due to Al-Qaeda's armed attacks on Western, and especially American installations and interests abroad.
S39/TPP/T3	The historic 9/11 incident in 2001 permanently made jihad an evil international Islamic terrorist demon.
S40/TPP/T3	However, such popular perceptions of jihad are not necessarily an accurate meaning and interpretation of the Islamic theory of jihad.
S41/TPP/T3	These perceptions present an exaggerated perspective of jihad and

	completely overlook its deep-rooted philosophical perspectives.
S42/TPP/T3	According to the Islamic understanding, jihad is not primarily a killing dogma; rather it has a universal humane philosophy that in fact inspires Muslims to fight against anti-social and anti-human forces.
S43/TPP/T3	An exploration of such perspective of jihad might be interesting and of immense academic importance.
S44/TMJ/T3	Jihad is a transliteration of an Arabic word.
S45/TMJ/T3	It is a noun derived from <i>jahduor jahada</i> .
S46/TMJ/T3	Literally it means to strive or labor – employing oneself vigorously, strenuously, laboriously, diligently, studiously, sedulously, earnestly (Lane).
S47/TMJ/T3	The term came to be used in the <i>Qur'ān</i> and the <i>Sunnah</i> (the Prophetic Tradition in Islam) in association with a number of issues such as comprehensive efforts towards dedicating oneself in the cause of God, worship in inner and outer forms, engaging in the propagation of religion, and warfare (Rudolph 1996; Schleifer 1984).
S48/TMJ/T3	Because the concept of jihad is distinctly significant in Islam, it occupies a unique status in the Islamic socio-legal system (Donner).
S49/TMJ/T3	Jihad is at the core of the universal mission of an individual Muslim as well as of the Islamic Community – <i>Ummah</i> (Kolocotronis; Sachedina).
S50/TMJ/T3	So, on the one hand, it is interpreted from the individual's spiritual perspective, and on the other hand, it is explained from the perspective of communal political life (Schleifer 1983).
S51/TMJ/T3	Spiritual interpretation of jihad is expressed by the phrase <i>jihad kabir</i> (greater jihad), for it is a life-long process of an individual Muslim to remain constantly engrossed in fighting against the evil nature of his soul.
S52/TMJ/T3	A political interpretation of jihad is termed as <i>jihad sagir</i> (smaller jihad), which is a military warfare waged by the Muslims against others for various reasons.
S53/TMJ/T3	This is a smaller jihad because military warfare is temporary, conditioned by specific causes, and it can cease with victory or negotiated settlement.
S54/TMJ/T3	Furthermore, the smaller jihad is an act that can be carried out only by the state authority and not by any non-state agents.
S55/TMJ/T3	However, regardless of whether jihad is greater or smaller, it is always associated with the universal mission of an individual Muslim as well as of the political community (Abedi).
S56/TMJ/T3	Following are some religious texts that imply the universal nature of jihad:
S57/TMJ/T3	However, since the spiritual dimension of Jihad is personal, the political dimension of it became more pivotal in the early days of Islam.
S58/TMJ/T3	Jihad provided religious sanctions and guidance for the expansion of Islam; it provided principles of war and peace, and diplomacy and negotiation.
S59/TMJ/T3	It was the sole guiding theoretical foundation of foreign policy in Islam during the early centuries of the Islamic civilization.
S60/JLM/T3	Despite the Qur'an being the ultimate source of Jihad, it does not lay down a detail doctrine of it.
S61/JLM/T3	According to Khadduri's classification, a comprehensive development



	of the complete doctrine of jihad took place during the eighth and ninth centuries, starting about a hundred year after the Qur'an was revealed.
S62/JLM/T3	This was the time when the prominent Islamic schools of thought were developed (Hanafi School 699-768; Maliki School 781-796; Shafi'i School 768-820; and Hanbali School 780-855) and completed comprehensive and detailed outlines of jihad.
S63/JLM/T3	As these schools of thought were primarily legalistic in nature, the doctrine of jihad in their hands remained essentially legalistic.
S64/JLM/T3	In Islamic philosophy the ultimate objective of Islam is to establish the supremacy of God's word and eliminate any challenge to it.
S65/JLM/T3	The classical schools of thought took jihad as a means to achieve this objective.
S66/JLM/T3	As such, the early jurists classified jihad into two legal types: individual obligation ( <i>fard al 'ain</i> ) and collective obligation ( <i>fard al kifayah</i> ) (al Zuhaili).
S67/JLM/T3	Individual obligation of jihad was interpreted from the perspective of a total war where every citizen irrespective of sex, age, or marital status was to join in the military service.
S68/JLM/T3	This type of jihad, which can be called a total war, was particularly prescribed in a situation of foreign attack on the state (Ibn Qudamah).
S69/JLM/T3	The collective obligation of jihad was interpreted as carrying out the routine duties of military service by the professional armed forces on behalf of the citizens.
S70/JLM/T3	Both these types of jihad are under the authority of the state.
S71/JLM/T3	A number of observations can be made on the classical doctrine of jihad.
S72/JLM/T3	First, jihad in the classical doctrine is more than declaration of, or waging a war.
S73/JLM/T3	Jihad rather refers to a complete military science involving detailed military tactics, use and prohibitions of weaponry, pre-war logistic and defensive mechanism, rules of engagement, the rights of civilians and military personnel, the rights of prisoners of war, and pre-war or post-war negotiation, and truce and peace treaties.
S74/JLM/T3	Second, the classical doctrine made a bipolar classification of the world into <i>dar al-islam</i> and <i>dar al-harb</i> .
S75/JLM/T3	<i>Dar al-islam</i> (territory of Islam) refers to regions that were under the control of the Islamic authority, and <i>dar al-harb</i> (territory of war) was other regions against which waging war was permitted.
S76/JLM/T3	Such a bipolar classification of the world was certainly influenced by both the religious understanding of the universal mission of the Muslim community, and the patterns of international interactions of the time.
S77/JLM/T3	The Muslims understood that their universal mission was to propagate Islam to every nation, and they could engage in war with nations who stopped this mission.
S78/JLM/T3	However, war was not an invention of Islam for doing so, rather it was a means used by nations at that time for various reasons.
S79/JLM/T3	Furthermore, war in propagating Islam was not declared unilaterally, but rather was used in response to the declaration of war or active resistance by the nations in the territory of war.
S80/JLM/T3	Therefore, the Muslim territories perceived the non-Muslim territories as

	potential threats to Islam, which led Muslims to consider the latter as the territory of war.
S81/JLM/T3	Third, in the classical doctrine, jihad is often used instead of other military terms such as <i>harb</i> (war) and <i>qital</i> (fighting/war).
S82/JLM/T3	The Qur'an used the term jihad mostly when it referred to comprehensive non-military efforts to uphold the word of God, to ensure social justice, and to resist injustice and evil.
S83/JLM/T3	Only in few instances the Qur'an uses jihad, <i>harb</i> , and <i>qital</i> in reference to Muslims active combat against non-Muslims.
S84/JLM/T3	But the Qur'an never uses the term jihad when it refers to military activities carried out by non-Muslims.
S85/JLM/T3	In such cases it uses either <i>harb</i> or <i>qital</i> .
S86/JLM/T3	This difference in using the term is because Muslims wage wars for a nonmaterial and higher purpose of establishing social justice and the supremacy of God's rule, while non-Muslims wage wars to challenge God's rule.
S87/JLM/T3	However, the Islamic jurists increasingly preferred to use <i>qital</i> instead of jihad.
S88/JLM/T3	For instance, two of the most classical Islamic texts, <i>al Umm</i> (Al Shafi'i) and <i>al-Mabsut</i> (Al Sarakhsi), used the term jihad most of the time implying <i>qital</i> .
S89/JLM/T3	This can be explained from three perspectives.
S90/JLM/T3	First, during the initial period of expansion of Islam, it faced persistent security threats from strong powers such as the Byzantine Empire that led to increased warfare and the routinization of military engagement.
S91/JLM/T3	And the basic principles of military engagement in the systemic practice of inter-power relations during that time were characterized by expansion, resistance, domination, and subjugation.
S92/JLM/T3	So, Islamic jihad in this situation became more militaristic.
S93/JLM/T3	Second, the Byzantine Empire not only considered Islam as a rising political threat but also depicted Islam as misguided heresy and the enemy of Christianity, the struggle against which was a religious responsibility of the Christians (Vasiliev).
S94/JLM/T3	This fostered a warlike mentality in the Muslim world.
S95/JLM/T3	And finally, the Islamic territories were also facing internal security threats from rebellious Muslim groups against whom military actions were necessary.
S96/JLM/T3	Therefore, under such circumstances jihad toned with moral-ideological purpose was replaced with <i>qital</i> toned with active combat.
S97/JLM/T3	An important aspect of the Islamic concept of jihad is whether it is offensive or defensive.
S98/JLM/T3	Many argue that jihad is essentially an offensive and hawkish policy that led to numerous wars in history and is still generating terrorist groups and movements in Muslim countries.
S99/JLM/T3	An-Na'im claims that the classical theory of jihad developed in "an extremely harsh and violent environment, where the use of force in intercommunal relations was the unquestioned norm. It was simply conceptually incoherent and practically impossible for Shariah regulation of intercommunal (international) relations to have been based

	on principles of peaceful coexistence . . .” (166).
S100/JLM/T3	However, other scholars argue that jihad is essentially defensive.
S101/JLM/T3	For instance, Abu Sulayman argues that this is the basic position of the Hanafi school of thought.
S102/JLM/T3	The theory and scope of jihad was further curtailed by Indian scholars such as Sayyed Ahmad Berlawi, Shah Ismail, Shah Abdul Hayy, and Sayyed Ahmad Khan, and by Egyptian scholars such as Sheikh Mahmud Shaltut, Muhammad Abdu, and Rashid Rida.
S103/JLM/T3	Not only did all of them reduced jihad into a defensive policy, but some of them also went so far as to “drastically restricted the scope of jihad duty . . . limited this to defense against religious oppression impairing the pillars of Islam . . . thereby excluding it from all other kinds of political oppression. Thus they introduced a separation between the religious and political spheres . . .” (Rudolph 1979: 125).
S104/JLM/T3	Yet such a severe reduction of jihad into a non-political, non-military, and non-violent concept is further reduced by contemporary scholars to even abolishing it altogether.
S105/JLM/T3	This drastic departure from all the previous interpretations of jihad is pioneered by a leading revisionist Islamic thinker, Abdul Hamid Abu Sulayman.
S106/JLM/T3	He is the first Islamic thinker who conducted an extensive and rigorous study on the Islamic theories of foreign policy in light of the modern theories and system of international relations.
S107/JLM/T3	In his work <i>The Islamic Theory of International Relations: New Directions for Islamic Methodology and Thought</i> , Abu Sulayman sharply criticized the classical Islamic theory of jihad and international relations as essentially legalistic and influenced by the existing rules of engagement of war and peace during the seventh and eighth century.
S108/JLM/T3	According to him, the classical Islamic bipolar worldview of <i>dar al-islam</i> and <i>dar al-harb</i> is no longer appropriate in today’s international systemic context, which is based on cooperation and peace.
S109/JLM/T3	Therefore, Abu Sulayman holds the view of “abandonment of war as the basis of foreign relations” and “the adoption of diplomatic reciprocity and alliances with non-Muslim states, and the principle of positive neutrality” (133).
S110/JLM/T3	To him, jihad is an insignificant part of the entire Islamic system of foreign policy; it was a purely defensive, need-based, and temporary issue.
S111/JLM/T3	Such an attempt to reconstruct Islamic foreign policy in defensive terms risks making jihad obsolete as an important concept in Islam.
S112/JLM/T3	All the more, such a possibility is being strengthened by the post 9-11 Western military as well as intellectual offensive against the Muslim world and particularly Islamic intellectual movements.
S113/JLM/T3	Western sensitivities to the concept of jihad went so far as to make Muslims in general and intellectuals in particular cautiously avoid using the term at all.
S114/JLM/T3	Does that mean jihad as a fundamental universal mission of the Islamic ideology has lost its validity?
S115/JLM/T3	Is jihad becoming obsolete?

S116/JLM/T3	In contrast to eliminating jihad, it can be explained and understood from a totally different perspective.
S117/JLM/T3	In such an explanation jihad can be perceived as less militant, terrorist, and offensive, and more ideological, humane, and universal.
S118/JLM/T3	This is because as the earlier theory of jihad was developed in the context of the practical political and international system of the time, so it can be reinterpreted according to the existing international system of today.
S119/JLM/T3	In such a reinterpretation, the basic values of jihad and Islamic foreign policies remain unaltered, but the form of its application takes a different shape.
S120/CIJ/T3	The modern Islamic intellectual tradition has taken a different route in reinterpreting the Islamic theory of foreign policy based on jihad that transcends the traditional setting.
S121/CIJ/T3	In this tradition, the basic concentration is not on the law of war and peace but universal principles of relations between Muslim and non-Muslim states.
S122/CIJ/T3	In the classical tradition, jihad was considered to be the core of inter-state relations, but in the contemporary tradition it is considered only a distant sub-category in broader foreign policy principles.
S123/CIJ/T3	In this direction, Abu Sulayman has made an impressive contribution by identifying universal principles of Islamic foreign policies.
S124/CIJ/T3	These basic principles are: unity of God and Creation ( <i>tawhid</i> ); justice ( <i>'adl</i> ); peace, mutual support, and cooperation; jihad ( <i>self-exertion</i> ); respect and fulfillment of commitments.
S125/CIJ/T3	These principles are to be based on another set of basic values: no aggression ( <i>'udwan</i> ), no tyranny ( <i>tughyan</i> ), no corruption ( <i>fasad</i> ), and no excesses ( <i>israf</i> ).
S126/CIJ/T3	In this new interpretation of Islamic foreign policies, Abu Sulayman has taken a pacifist and defensive stand regarding the concept of jihad, though he includes combat on the battlefield as one of many aspects of jihad.
S127/CIJ/T3	Such an interpretation of the concept refers to the universal and humane objectives of jihad beyond combat activities.
S128/CIJ/T3	It indicates that the underlying and primary objective of jihad is human welfare and not warfare.
S129/CIJ/T3	Abu Sulayman's new interpretation shows that the Islamic concept of jihad has the potential to contribute enormously in the international system.
S130/CIJ/T3	The above discussion indicates that the modernist interpretation of the traditional theory of jihad in the framework of universal foreign policy principles and values omits the possibility of the obsolescence of jihad.
S131/CIJ/T3	In other words, the new theory has attempted to upgrade jihad into systemic rules of engagement outlining normative principles, rules, and values in international interactions.
S132/CIJ/T3	Indeed, the universal objectives and values of the theory of jihad appear to be highly relevant in the contemporary international system.
S133/CIJ/T3	Today's world is a global society.
S134/CIJ/T3	In this world an immense level of interactions and interdependency require standard rules and regulations at the global level that are binding upon various actors in the international system.

S135/CIJ/T3	Such rules and regulations are called international regimes.
S136/CIJ/T3	In the post-Cold War world, international regimes are becoming supranational “governance without government” and their importance is becoming paramount (Crawford).
S137/CIJ/T3	The underlying universal values of jihad can be interpreted from the perspective of the theory of international regime as well.
S138/CIJ/T3	International regimes are understood as “implicit or explicit principles, norms, rules, and decision-making procedures around which actors’ expectations converge in a given area of international relations” (Krasner: 2).
S139/CIJ/T3	In a more elaborate way “regimes are rules of the game agreed upon by actors in international arena (usually nation states) and delimiting, for these actors, the range of legitimate or admissible behaviour in a specified context of activity” (Rittberger: xii).
S140/CIJ/T3	Regimes are created either by mutual understandings among the nations or by prescriptive imposition by dominant powers (Haggard).
S141/CIJ/T3	A most handy example of international regimes is the Nuclear Non-Proliferation Treaty (NPT).
S142/CIJ/T3	Regimes like NPT include other issues such as international trade, environmental conservation, pollution control, human rights, international terrorism, and Intellectual Property Rights.
S143/CIJ/T3	All signatories to such regimes are bound to follow agreed upon rules relating to the issues.
S144/CIJ/T3	The concept of jihad similarly can be adopted as an international regime because of the universal principles, rules, and values that it prescribes for international interactions.
S145/CIJ/T3	The universal and moral regimes of jihad are useful to challenge a number of global issues.
S146/CIJ/T3	The twenty-first century world is beset with widespread problems, some of which are local in origin but global in reach, and some of which are global in nature.
S147/CIJ/T3	The World Order Models Project (WOMP), in its report <i>On Humane Governance</i> (Folk) indicated that human society is suffering from ideological confusion, socio-economic and political injustice, unnecessary and unjust wars, poverty, crimes, and ecological disaster.
S148/CIJ/T3	To address these problems, the report suggested a “humane governance” that “emphasizes people centered criteria of success as measured by decline of poverty, violence and pollution and by increasing adherence to human rights and constitutional practices.”
S149/CIJ/T3	Today, these problems have taken a global shape.
S150/CIJ/T3	Particularly, some of the most important global concerns such as international terrorism, global environmental degradation, poverty, and the violation of human rights are generating a host of international regimes to redress these problems.
S151/CIJ/T3	The Rio Earth Summit of 1992, the Kyoto Protocol of 1997, and the Bali Earth Conference of 2007 are some global attempts to devise global environmental regimes.
S152/CIJ/T3	The World Food Summit Plan of Action of 1996 and the Microcredit Summit of 1997 are examples of global regimes aimed at fighting widespread poverty.

S153/CIJ/T3	The “global war” on terror following the 9/11 incident led to devising anti-terrorism regimes at the global level.
S154/CIJ/T3	And the European Declaration of Human Rights is an example of further strengthening the human rights regimes.
S155/CIJ/T3	In such a quest for global regimes to fight environmental disaster, international terrorism, poverty, and human rights violations, the principles and values of jihad can be considered a useful resource.
S156/CIJ/T3	Below, we discuss the universal regimes of jihad that can effectively address three principle global problems: environmental degradation, human rights abuse, and international terrorism.
S157/UHI/T3	The contemporary interpretations of jihad can easily provide some grounds for it to be incorporated in the international political system in order to exploit its humane potentials to fight against many of the global crises outlined above.
S158/UHI/T3	Instead of emphasizing the negative image of jihad created by deviant Islamic groups, its universal humane appeal can be more useful in many respects.
S159/UHI/T3	Below, we outline a number of such possible explorations of the usefulness of the spirit of jihad.
S160/UHI/T3	Eco-politics or earth politics is now a global movement (Weizsacker; Luke; Chaloupka; Giddens).
S161/UHI/T3	Continuous environmental degradation and the depletion of natural resources have led to the emergence of sustainable development, reforestation, wild-life preservation, anti-pollution, and environmental politics.
S162/UHI/T3	Indeed, recent recurrent cycles of drought and flooding all over the world, global warming, depletion of the ozone layer, and melting of the polar ice are now known to be the direct consequences of the indiscriminate use of natural resources and unfriendly industrialization of the environment.
S163/UHI/T3	Such actions have led to what Giddens calls “manufactured risk” (4, 10) and “manufactured uncertainty” (10, 93).
S164/UHI/T3	To fight such manufactured risks and uncertainty, new concepts such as Green politics or Green International Political Economy are on the rise globally.
S165/UHI/T3	Islamic universal values and principles regarding environmental conservation are direct and clear.
S166/UHI/T3	Islam puts great emphasis on the conservation of natural resources and the careful and calculated use of it.
S167/UHI/T3	Its moral regimes strongly recommend people to refrain from wastage, extravagance, and wasteful or excessive use of natural resources.
S168/UHI/T3	Furthermore, Islam considers indiscriminate and unwise use of natural resources as sinful.
S169/UHI/T3	The Qur’an reads, “The spendthrifts are the brethren of Satan, and Satan is ungrateful to his Lord, rebellious against Him” (17:27).
S170/UHI/T3	The Qur’an also directly holds men responsible for the disastrous consequences of destroying the global environment.
S171/UHI/T3	According to the Qur’an, outbreak of disaster in the ocean and on the land is a consequence of human deeds, in order for them to feel the taste of their deeds, so that they retreat (30:41).
S172/UHI/T3	Such universal moral regimes can be taken as guiding principles of

	global environmental jihad to protect and preserve the global environment.
S173/UHI/T3	The existing international regimes on human rights are concerned with any type of oppression, violation of human rights, tyranny, or dictatorial rule.
S174/UHI/T3	Democratization, rule of law, and respect for fundamental human rights have become global political and humanist regimes so much so that injustice anywhere is considered injustice everywhere.
S175/UHI/T3	Likewise, since the regime of jihad is based on universal justice, it concerns domestic as well as international violation of human rights.
S176/UHI/T3	The Islamic concepts of <i>tughyan</i> (aggression) and <i>zulm</i> (injustice, violation of rights) are instrumental in the regard of human rights.
S177/UHI/T3	<i>Tughyan</i> and <i>zulm</i> are two basic evils according to Islam that the Qur'an vehemently condemns.
S178/UHI/T3	The concept of <i>zulm</i> denotes anything that violates human rights, and is considered so anti-social that the Qur'an seriously condemns it as many as 289 times.
S179/UHI/T3	<i>Zulm</i> can be violation of ones'belief or belief system, freedom, religious affiliation, or political choice (Hossain and Cragg).
S180/UHI/T3	The humanist jihad would fight against tyranny, oppression, and the violation of human rights at the global level.
S181/UHI/T3	The regime of jihad is under moral obligation to voice out every abuse of human rights and against all types of tyranny and oppression anywhere in human society.
S182/UHI/T3	Such a universal perception of human rights in Islam is certainly in line with the ethos of modern global political and human rights regimes.
S183/UHI/T3	So, the humanist jihad can be a powerful incentive to protect and ensure human rights globally.
S184/UHI/T3	International terrorism has become the strongest threat to national and international peace and security.
S185/UHI/T3	It has furthered social instability, individual insecurity, and risks.
S186/UHI/T3	As a result, global war on terrorism is now a global concern.
S187/UHI/T3	Islam vehemently opposes any type of terrorism, and especially those that create social insecurity and risks.
S188/UHI/T3	There are two fundamental Qur'anic terms, <i>fasad</i> and <i>fitnah</i> , that comprehensively include all types of terrorist actions.
S189/UHI/T3	<i>Fasad</i> may simply mean deliberate disruption of law and order.
S190/UHI/T3	One of the major concerns of the Qur'an is to produce and maintain a socio-political system that will check, control, and possibly eliminate all types of <i>fasad</i> and <i>fitnah</i> (chaos and civil disarray) in order to ensure peace, stability, and law and order in society.
S191/UHI/T3	Therefore, <i>fasad</i> and <i>fitnah</i> are even considered worse than murderous acts.
S192/UHI/T3	<i>Fasad</i> and <i>Fitnah</i> can be both domestic and international terrorism and anti-social activities.
S193/UHI/T3	Domestic activities might include extortion, mass murder, and other anti-state activities.
S194/UHI/T3	At the international level, this may include organized or syndicate crime and international drug and human trafficking.

S195/UHI/T3	There are many non-state Islamic groups such as Al-Qaeda that use violence and terror in the name of jihad.
S196/UHI/T3	Both traditional and modernist Islamic thinkers agree that such violence and terrorist activities by non-state actors are illegitimate.
S197/UHI/T3	That is why the traditional thinkers have endorsed state-led jihad (war) against even Muslim rebellions or separatist groups or those who simply create social instability.
S198/UHI/T3	Using the same criterion, modern international terrorism by non-state actors whether by Muslims in the name of jihad or by others for any reason can be considered illegitimate.
S199/UHI/T3	Therefore, terrorist activities by Islamic or other non-state actors fall under the category of <i>fasad</i> that is obnoxious in Islam.
S200/UHI/T3	Also added to international terrorism are the problems of ethnic violence and ethnic cleansing and global endemics like AIDS.
S201/UHI/T3	Furthermore, an increasing number of social crimes originating from various sources threatens every nation's law and order and jeopardizes peaceful relations between states.
S202/UHI/T3	In today's globalized societies, every major incident affects each society, and no society is immune from the gravity of organized crimes, corruption, lawlessness, civil disarray, ethnic tensions, violence, and terrorism.
S203/UHI/T3	Clearly, the universal values of Islamic jihad are designed to eliminate these anti-social elements and to maintain peace and stability in the society.
S204/UHI/T3	Therefore, the universal principles and values of Islamic jihad can be utilized to fight any types of terrorist activities at national and international levels.
S205/CON/T3	Jihad has become a misunderstood concept today due to deviant use of it by deviant Islamic groups.
S206/CON/T3	Jihad contains a universal humane philosophy aimed more at human welfare than social warfare.
S207/CON/T3	Jihad is the manifestation of the individual and collective universal mission in Islam.
S208/CON/T3	At the individual level, it manifests in persistent control of the self against evil desires.
S209/CON/T3	At the collective level, it manifests in the implementation of the fundamental principles and values of justice, cooperation, non-aggression, and fights against abuse of human rights, social disturbance, and terrorism.
S210/CON/T3	Jihad can be understood and used in a positive sense and its universal moral philosophy and principals can be utilized to greater social and global benefits.



**APPENDIX A3: TRANSCRIPT – FATWA AND VIOLENCE IN INDONESIA  
(ARTICLE 4)**

S1/INT/T4	The relationship between fatwa and violence typically does not attract many scholars, in spite of the fact that the issue has become increasingly important.
S2/INT/T4	Apart from Noorhaidi Hasan’s article on the role of the Middle Eastern fatwas in the <i>jihad</i> movement in Maluku, Indonesia, there is only one English book that specifically discusses the topic (Mozaffari).
S3/INT/T4	There seems to be a hesitation in studying this topic, either due to sensitivity or overconcern about the possible bias in it.
S4/INT/T4	Many Muslims would likely reject any attempt to associate fatwa with violence generally on normative grounds, but a proper study explaining how certain fatwas could instigate violent actions or intolerant attitudes would be useful.
S5/INT/T4	This article is an attempt to provide such a study by examining some cases in Indonesia.
S6/INT/T4	Indonesia is not the only Islamic country where the relationship between fatwa and violence is present.
S7/INT/T4	I mainly use Indonesia as the object of this study for pragmatic reasons as I am more familiar with the country than other Muslim countries.
S8/INT/T4	Indonesia is the most populous Muslim country in the world and is regularly labeled as tolerant, moderate, and “different from the Middle East.”
S9/INT/T4	This label can only be sustained if there are no violent or intolerant actions in the name of religion as has been the case in the Middle East.
S10/INT/T4	I will divide this paper into three sections.
S11/INT/T4	The first will deal with the nature and function of fatwa.
S12/INT/T4	The second will explain the institutionalization of fatwa in Indonesia.
S13/INT/T4	And the third will focus on fatwas that trigger violent and intolerant actions in Indonesia.
S14/INT/T4	As an activist, I am very much engaged in the current discourse of Islamic thought in Indonesia.
S15/INT/T4	Some views expressed here are based on my direct encounters with social-political problems in the country.
S16/INT/T4	Conversations and discussions with various figures in Indonesia have assisted in developing the ideas in this article.
S17/TNF/T4	Fatwa is generally defined as “an Islamic legal opinion issued by a Muslim jurist” (Ibn Manzur: 5:3348; al-Zabidi: 39:211-12; see also Qalahji and Qunaybi).
S18/TNF/T4	Muslim jurists have many opinions in their life, but what makes their opinion a fatwa is that it is a response to a question addressed by a <i>mustafti</i> (someone who asks a fatwa).
S19/TNF/T4	In this sense, a general opinion, which is not grounded on a specific Muslim’s query, is not considered fatwa.
S20/TNF/T4	The element of <i>mustafti</i> in fatwa is important to distinguish between what is fatwa and what is not.

S21/TNF/T4	Many <i>muftis</i> (i.e., the authorities who issue fatwas) in medieval Islam were prolific authors whose opinions abundantly spread from the books they wrote.
S22/TNF/T4	Ibn Taymiyyah (d. 1328), for example, wrote more than a hundred titles, mostly on Islamic issues.
S23/TNF/T4	However, only two books attributed to him are considered to be fatwas (1987; 1404 H.; among other Muslim scholars whose fatwas have been collected into books are al-Subki; Ibn Rushd; al-Nawawi).
S24/TNF/T4	In the early days of Islam, fatwa generally referred to an instruction grounded on someone's question.
S25/TNF/T4	In an historical sense, the companions of the Prophet Muhammad often asked him about issues in Islam; his answers were subsequently considered to be fatwas.
S26/TNF/T4	Derivatives of the word "fatwa" are found in several verses of the Qur'an, such as: "They ask your instruction concerning women, say: Allah instructs you about them" (4:127).
S27/TNF/T4	This verse clearly indicates that the practice of giving fatwa ( <i>ifta</i> ) was very common in the time of the Prophet.
S28/TNF/T4	After the Prophet died, some companions of the Prophet continued the tradition of <i>ifta</i> .
S29/TNF/T4	Companions such as Umar bin Khattab, Ali bin Abi Thalib, Abdullah bin Mas'ud, Abdullah bin Abbas, A'isyah binti Abu Bakar, and Zayd bin Thabit were well-known for their fatwas.
S30/TNF/T4	However, during this time, fatwa was not yet formally institutionalized.
S31/TNF/T4	The institutionalization of fatwa only began in the mid-seventh century when the Umayyad founded a caliphate.
S32/TNF/T4	The position of " <i>mufti</i> " (also known as "jurisconsult") also emerged during this time.
S33/TNF/T4	As fatwa became institutionalized, the <i>muftis</i> became professionalized.
S34/TNF/T4	Wael B. Hallaq explains that being a <i>mufti</i> was quite prestigious as it was salaried by the government and included certain benefits and privileges (1996, 2005).
S35/TNF/T4	Fatwa generally deals with legal opinions, but in practice, the questions <i>muftis</i> were asked were not only limited to legal issues ( <i>masail fiqhiyyah</i> ).
S36/TNF/T4	When the theological schools emerged in the first part of the seventh century, fatwa dealt with theological issues.
S37/TNF/T4	For instance, the companions of the prophets and their followers ( <i>al-tabi'in</i> ) were asked about theological sects such as Qadariyah, Jabariyah, and Khawarij.
S38/TNF/T4	Al-Hasan al-Basri (d. 728), one of the leading followers, was asked by Abd al-Malik bin Marwan (d. 705), the caliph of Islam, regarding the issue of freewill and predetermination.
S39/TNF/T4	He responded by issuing a fatwa showing his inclination to the idea of freewill (al-Shahrastani: 47).
S40/TNF/T4	In the ninth century when Islamic theological schools flourished, fatwas on theological issues were as popular as Islamic legal issues.
S41/TNF/T4	<i>Muftis</i> were asked about the existence of God, divine attributes, human freewill, heaven and earth, the prophethood, the angels, and so on.
S42/TNF/T4	Hence, <i>muftis</i> were not only those who excelled in legal issues but also

	in theological ones.
S43/TNF/T4	It is important to mention here that before the end of the ninth century, there was hardly a distinction between legal and theological issues.
S44/TNF/T4	All religious issues were called “ <i>fiqh</i> ,” meaning “understanding.”
S45/TNF/T4	What we presently call “Islamic law” was previously known as “small jurisprudence” ( <i>fiqh al-asghar</i> ), while theology was called “big jurisprudence” ( <i>fiqh alakbar</i> ) (Zuhayli: 1:16).
S46/TNF/T4	Since there was no strict distinction between these two disciplines, there was no differentiation in methodological reasoning ( <i>ijtihad</i> ) as it was sharply employed in the later period of Islam.
S47/TNF/T4	<i>Ijtihad</i> is an important notion in the jurisprudential discourse.
S48/TNF/T4	Before the idea of “closing the gate of <i>ijtihad</i> ” ( <i>insidad al-bab al-ijtihad</i> ) spread widely, there were no limitations or proscriptions for Muslim scholars to practice <i>ijtihad</i> . Muslim scholars were quite familiar with the Prophetic tradition that says “if someone was right in doing <i>ijtihad</i> , he or she deserves two rewards, and if wrong one reward.”
S49/TNF/T4	They just practiced <i>ijtihad</i> and never questioned it.
S50/TNF/T4	The practice of <i>ijtihad</i> began to be challenged seriously in the beginning of the tenth century.
S51/TNF/T4	As the theorizing of <i>ijtihad</i> matured, the effort to practice it gradually declined.
S52/TNF/T4	Hence, Muslim scholars began to speak of “closing the gate of <i>ijtihad</i> ” and the impossibility of exercising it (Hallaq 1984, 1986).
S53/TNF/T4	Al-Juwayni (d. 1085), one of the greatest scholars of Islam, wrote a book where he distinguished between <i>ijtihad</i> in the fundamental matters ( <i>usul</i> ) and in the particular ones ( <i>furu</i> ).
S54/TNF/T4	By the fundamental matters he meant the theological issues or the big jurisprudence; by the particular ones he meant the legal issues or small jurisprudence.
S55/TNF/T4	Al-Juwayni concluded that <i>ijtihad</i> is not allowed in the fundamental matters, but allowed in the particular ones (18; see also Ibn al-Firkah: 371-77).
S56/TNF/T4	This was perhaps the first attempt to make a distinction between <i>ijtihad</i> in the theological issues and in the jurisprudential ones.
S57/TNF/T4	The main reason was likely grounded in the over-concern about the growing number of theological sects in Islam.
S58/TNF/T4	To stop these “heretical” movements, al-Juwayni cleverly stamped out their roots by distinguishing two kinds of <i>ijtihad</i> where one was illegal.
S59/TNF/T4	The ultimate target was quite clear in that theological sects other than Sunnism are dissidents.
S60/TNF/T4	The effort to distinguish <i>ijtihad</i> has a consequence not only in diminishing the number of Islamic theological sects, but also the number of fatwas on theological issues.
S61/TNF/T4	As Sunnism became an accepted orthodoxy, Muslims were no longer interested in other schools of theology.
S62/TNF/T4	Thus, entering the eleventh century, along with the crystallization of the Islamic legal schools ( <i>mazahib al-fiqhiyyah</i> ), fatwa eventually became a jurisprudential term.
S63/TNF/T4	To speak about fatwa thus later meant to speak about Islamic legal issues or to see things from legal Islamic perspectives.

S64/IFI/T4	For most of Islamic history, fatwa was practiced individually in the sense that the issuance of fatwa came from a single person, namely a <i>mufti</i> or in a broader term a <i>mujtahid</i> .
S65/IFI/T4	The institution of fatwa was symbolized by a single person, that is a <i>mufti</i> . Although a <i>mufti</i> may be assisted by several <i>ulama</i> around him, the issuance of fatwa was entirely credited to him alone.
S66/IFI/T4	During the Ottoman era, the fatwa institution was called “the grand scholar of Islam” (Shaikhul Islam), whose very term reflects an individual person.
S67/IFI/T4	The status of Shaikhul Islam was part of the three positions in the judiciary body of the Ottoman era.
S68/IFI/T4	The other two were the Qadhasqars or the actual head of the judiciary board and the Qadis or the persons who execute judicial tasks (Akgündüz).
S69/IFI/T4	Shaikhul Islam held the highest position in the Islamic legal structure and both people and government respected it.
S70/IFI/T4	Many Muslim countries follow the Ottoman model of fatwa institution.
S71/IFI/T4	The “grand scholar of Islam” is adopted with different names.
S72/IFI/T4	In Saudi Arabia, it is called “ <i>mufti al-mamlakah</i> ” (the Mufti of the Kingdom).
S73/IFI/T4	In Egypt, it is called “ <i>mufti ‘am</i> ” (Grand Mufti) or sometimes “ <i>mufti al-misr</i> ” (the Mufti of Egypt).
S74/IFI/T4	Although there is a special institution called “Dar al-Ifta” (the house of fatwa), the role of <i>mufti ‘am</i> remains crucial since he is the head of the institute.
S75/IFI/T4	The role of Dar al-Ifta is limited in recording the fatwas of the <i>mufti ‘am</i> rather than itself issuing the fatwas (Skovgaard-Petersen).
S76/IFI/T4	In other Muslim countries such as Syria, Jordan, Morocco, Tunisia, and Malaysia, the term “grand mufti” with their respective languages is often used.
S77/IFI/T4	The same title is also used in some non-Muslim countries such as Australia, France, and Russia.
S78/IFI/T4	Unlike many other Muslim countries, Indonesia does not have a grand mufti.
S79/IFI/T4	Indonesian Muslims apparently do not want to copy the exact Ottoman model of fatwa institution.
S80/IFI/T4	They instead created their own organizational body with the establishment of the Council of Indonesian Ulama (Majelis Ulama Indonesia, MUI).
S81/IFI/T4	Although it looks like the Egyptian Dar al-Ifta, the role that this institution plays is quite different.
S82/IFI/T4	Unlike Dar al-Ifta, there is no single dominant figure in the MUI.
S83/IFI/T4	The leader of this council simply acts as the chairman of an organization.
S84/IFI/T4	The highest authority in fatwa is not the chairman of the council, but the Fatwa Commission, which comprises several members of distinguished <i>ulama</i> .
S85/IFI/T4	A fatwa will not be issued if this committee fails to come to a consensus.
S86/IFI/T4	MUI was established in 1975.

S87/IFI/T4	It took five years from the initial idea to form the body.
S88/IFI/T4	It all began at a national conference held in Jakarta by the Centre for Islamic Preaching (Pusat Dakwah Islam) on September 30, 1970.
S89/IFI/T4	The five-day conference invited various scholars from different Islamic backgrounds.
S90/IFI/T4	The conference aimed to gauge interest in establishing a body of <i>ulama</i> (Muslim clerics) at the national level (Mudzhar).
S91/IFI/T4	The <i>ulama</i> are an elite group of the Muslim community whose number is quite large.
S92/IFI/T4	Many of them own independent educational institutions called “pesantren.”
S93/IFI/T4	They were mostly affiliated to two major Islamic organizations, namely Muhammadiyah and Nahdlatul Ulama.
S94/IFI/T4	There was, however, no unifying body at the national level.
S95/IFI/T4	Muhammadiyah and Nahdlatul Ulama had deep tensions, and the idea of forming a national body of <i>ulama</i> was then designed to minimize these tensions.
S96/IFI/T4	Some interesting ideas emerged at the conference.
S97/IFI/T4	One of which came from Ibrahim Hosen, a graduate of the Egyptian al-Azhar and an expert of Islamic Law.
S98/IFI/T4	Apart from agreeing to have a national body of <i>ulama</i> , Hosen proposed the idea of practicing collective <i>ijtihad</i> .
S99/IFI/T4	As mentioned elsewhere, <i>ijtihad</i> is an effort to solve a problem in religious matters.
S100/IFI/T4	Generally, <i>ijtihad</i> is managed by a single person, normally a religious scholar.
S101/IFI/T4	Hosen’s idea was to depersonalize <i>ijtihad</i> .
S102/IFI/T4	His argument was that since Muslim problems were getting bigger and more complex it was impossible for a single person to cope with all of them.
S103/IFI/T4	Thus, a collective <i>ijtihad</i> would be an ideal solution.
S104/IFI/T4	Hosen’s idea was soon rejected by Abdul Karim Amrullah, a charismatic and prolific author, known by the <i>nom de guerre</i> , Hamka.
S105/IFI/T4	In his presentation, Hamka rejected Hosen’s idea of “collective <i>ijtihad</i> ” and proposed the most common alternative, namely “the grand mufti.”
S106/IFI/T4	For Hamka, a grand mufti was more necessary for Indonesian Muslims than a body of <i>ulama</i> , which according to him certain Muslim groups would abuse.
S107/IFI/T4	Hamka’s other reason was that the council would include secular scholars in making <i>ijtihad</i> , an idea he strongly opposed.
S108/IFI/T4	Hamka’s argument seemed to have won the hearts and minds of the audience, as the conference eventually closed with a recommendation to review further the idea of establishing a council.
S109/IFI/T4	It was not until five years later that the idea of the MUI finally crystallized.
S110/IFI/T4	The official formation of the MUI was completed in July 1975.
S111/IFI/T4	Fifty-three participants from various Islamic backgrounds signed on.

S112/IFI/T4	Hamka, the man who originally rejected the idea of the council was appointed its first general chairman.
S113/IFI/T4	According to Nadirsyah Hosen, Hamka's acceptance of the chairman position was driven by the change of political settings.
S114/IFI/T4	Five years earlier, when he rejected the idea, the traditionalist group (Nahdlatul Ulama, NU) was quite dominant, but then, the modernist group (Muhammadiyah), to which Hamka was affiliated, became dominant.
S115/IFI/T4	Hamka gave his own reasons for why he accepted the appointment: First, "Muslims should cooperate with Soeharto's government," and second, the "establishment of the MUI could improve relations between the government and Muslims" (Hosen: 151).
S116/IFI/T4	Whatever the reason of Hamka's acceptance, one thing is clear: the MUI would not become an institution like Shaikhul Islam of the Ottoman era, nor would it become like the Dar al-Ifta of Egypt, where the grand mufti played a central role.
S117/IFI/T4	The MUI was simply an institution where all members have the same authority in formulating a fatwa.
S118/IFI/T4	The number of MUI members has fluctuated.
S119/IFI/T4	During the first period (1975-1981), it was comprised of seven <i>ulama</i> members.
S120/IFI/T4	As of 2008, it consists of no less than 140 members, comprising an Advisory Council of 50, an Executive Council of 21, and 11 different commissions with more than 70 members.
S121/IFI/T4	The Fatwa Commission is the most important of the latter.
S122/IFI/T4	The organizational character of the MUI remains intact, as there has never been a single all-powerful man.
S123/IFI/T4	The involvement of leaders from various Islamic organizations also prevents this organization from becoming a personality driven institution.
S124/IFI/T4	Muhammadiyah and Nahdlatul Ulama are dominant in the council, but other smaller organizations such as Persatuan Islam, al-Irsyad, and Nahdlatul Watan are also given equal rights.
S125/IFI/T4	Since its formation, the MUI has had five general chairmen.
S126/IFI/T4	Although all members have the same rights, the position of general chairman is reserved for someone from either Muhammadiyah or Nahdlatul Ulama with the leadership role alternating hands between the two organizations.
S127/IFI/T4	As of July 2008, the MUI has issued 96 fatwas, consisting of four main issue areas: ritual or <i>ibadah</i> (23 fatwas), religion (11 fatwas), social issues (40 fatwas), science and technology (11 fatwas), and one section of fatwas issued by the Seventh National Congress in 2005 (11 fatwas).
S128/IFI/T4	Some of these fatwas are repetitive in that an earlier fatwa is reissued in another with additional explanation, such as the fatwa on Ahmadiyah that was issued in 1980 and again in 2005 (this fatwa will be discussed further below).
S129/IFI/T4	Some are consecutive in the sense that one issue is addressed by two fatwas, such as the fatwa on the stay ( <i>miqat</i> ) of pilgrimage in Mecca and the fatwa on national gambling (SDSB, Sumbangan Dana Sosial Berhadiah).

S130/IFI/T4	Many fatwas were based on Muslims' queries and a few of them were responses to the government's policies.
S131/IFI/T4	Among the latter's example is the fatwa on the utilization of Intrauterine Devices (IUD), which was a response to the government's program of family planning in early 1980s.
S132/IFI/T4	Before the downfall of Soeharto, the MUI's fatwas were politically influenced by his regime.
S133/IFI/T4	It was almost impossible to imagine this council issuing a fatwa against a government policy.
S134/IFI/T4	The only case of the MUI's fatwa that stirred up Soeharto's anger was the fatwa on "the presence in the Christmas celebration" (Perayaan Natal Bersama) issued on March 7, 1981.
S135/IFI/T4	According to this fatwa, Muslims are not allowed to attend Christmas celebrations.
S136/IFI/T4	It is reported that Soeharto was furious with the fatwa as it negatively impacted the government's efforts to build religious harmony in the country.
S137/IFI/T4	Moreover, the fatwa was blatantly against the government's annual tradition to celebrate Christmas officially.
S138/IFI/T4	Subsequently, the issue stimulated wide controversy and culminated in the resignation of the MUI General Chairman, Hamka, from his position.
S139/IFI/T4	Nevertheless, the fatwa has remained intact until the present (see further, Mudzhar).
S140/IFI/T4	After the downfall of Soeharto in 1998, the position of the MUI was quite independent from the state (for further elaboration, see Ichwan).
S141/IFI/T4	In the Soeharto time, the MUI members needed to fulfill one non-negotiable criterion – that is, they had to be accepted by the president.
S142/IFI/T4	It was almost impossible for a radical or an ultra-conservative Muslim to be an MUI member.
S143/IFI/T4	In the post-Soeharto era, however, the MUI had autonomy in selecting its members.
S144/IFI/T4	The president would not interfere in the selection process of its chairman nor its members.
S145/IFI/T4	This autonomous privilege shaped a new character of the MUI and determined its current history.
S146/IFI/T4	One of the most important impacts of its new autonomous character is that the council seems to have lost any filter for membership.
S147/IFI/T4	Apart from the rocketing number of its members (from 7 to more than 140), the MUI structure is now more determined by ideological-political interest.
S148/IFI/T4	Many of its members are activists, politicians, journalist, and even leaders of radical Islamic groups (see MUI 2005b).
S149/IFI/T4	This situation has certainly influenced the fatwas that the MUI has issued and also determined the way the council deals with religious issues in the country.
S150/IVF/T4	Some social scientists argue that an idea does not directly generate actions.
S151/IVF/T4	There are several factors, which can be sociological, financial, political, or psychological, that trigger someone to do his or her actions.
S152/IVF/T4	To say that an idea can kill or hurt people needs explanation.

S153/IVF/T4	For example, the causes of radical Islamic movements are not simply theological (see Richards; Kepel).
S154/IVF/T4	Fatwa is basically an idea. It is a word or a saying that bears messages.
S155/IVF/T4	A fatwa that instructs people to do a good thing is a good fatwa.
S156/IVF/T4	On the contrary, a fatwa that asks people to kill other people is a killing fatwa.
S157/IVF/T4	When Khomeini issued his fatwa to murder Salman Rushdie, his fatwa was certainly a killing fatwa.
S158/IVF/T4	There were several fatwas in Egypt that called on Muslims to kill or hurt people.
S159/IVF/T4	For example, Faraj Fouda, an Egyptian intellectual, was shot dead by a Muslim extremist who discovered a fatwa on the permissibility of killing a blasphemer (which the extremist certainly considered Fouda to be).
S160/IVF/T4	Similarly, another Muslim extremist stabbed Naguib Mahfouz, a Nobel Prize laureate, after he attended a Friday prayer where he listened to a sermon stating that “Mahfouz’s blood is <i>halal</i> .”
S161/IVF/T4	Intolerant attitudes or violent actions may be caused by various factors.
S162/IVF/T4	However, as far as religious behavior is concerned, they can be attributed to religious doctrines (Oommen).
S163/IVF/T4	It is quite easy to pick out which MUI’s fatwas may generate intolerant actions or violent attitudes from those that do not.
S164/IVF/T4	Fatwas that deal with minority groups would be very likely uncharitable.
S165/IVF/T4	The MUI has issued fatwas against Shi’ism, Ahmadiyah, Islam Jama’ah, Darul Arqam, and Christianity.
S166/IVF/T4	All contain warnings whose basic message is to discourage Muslims from deal with all these groups.
S167/IVF/T4	In the following paragraphs, I will discuss several fatwas that directly instigate violent and intolerant actions in Indonesia.
S168/IVF/T4	As violent and intolerant actions are the matters of human conduct, I will focus on the fatwas that are specifically concerned with requests that necessitate Muslims’ actions.
S169/IVF/T4	I break them down into three parts: first on Ahmadiyah, second on religious minority groups, and third on the liberal Islamic groups.
S170/IVF/T4	Among the baffling fatwas that the MUI has issued, fatwas on Ahmadiyah are perhaps the most grievous one.
S171/IVF/T4	Ahmadiyah is an Islamic sect founded by Mirza Ghulam Ahmad (d. 1908), an Indian Muslim reformer, in 1889.
S172/IVF/T4	It came to Indonesia in the early 1920s, during a period known as “national movement era.”
S173/IVF/T4	Many organizations, intellectual circles, and study groups emerged during this era.
S174/IVF/T4	On November 28, 1920, <i>Tasywirul Afkar</i> , a study group based in Surabaya invited Maulana H. Khwadja Kamaluddin, an Ahmadiyah leader of the Lahori Branch, to give a keynote speech in a celebration of the Prophet’s birthday at the Sunan Ampel mosque.
S175/IVF/T4	This was evidently the first appearance of Ahmadiyah in a public scene in Indonesia.
S176/IVF/T4	Since the invitation of Khwadja Kamaluddin, information on Ahmadiyah gradually developed.



S177/IVF/T4	Ahmadiyah literatures began to influence some study circles in Yogyakarta, Bandung, and other major cities.
S178/IVF/T4	In 1926, an Ahmadiyah branch was officially founded in Padang, West Sumatra.
S179/IVF/T4	Starting from 15 members, this branch rapidly grew and spread to other cities.
S180/IVF/T4	The branch was later named the Indonesian Ahmadiyah Group (Jema'at Ahmadiyah Indonesia, JAI), which now has hundreds of followers (on the history of Ahmadiyah, see Zulkarnain).
S181/IVF/T4	As it grew rapidly, controversy around Ahmadiyah began to spread.
S182/IVF/T4	The Ahmadiyah members that came to Indonesia, including the JAI, are mostly the Qadian branch, who believe that Ghulam Ahmad was more than just a reformer.
S183/IVF/T4	Because most Muslims do not accept the idea that there is a prophet after Muhammad, the Ahmadiyah members who believe in the prophethood of Ghulam Ahmad – however they qualify this prophethood – are considered heretics and, according to Muslim belief, must be opposed.
S184/IVF/T4	The MUI's fatwa against Ahmadiyah was released twice.
S185/IVF/T4	The first was in June 1980 and the second in July 2005.
S186/IVF/T4	The first fatwa was driven by the growing concern of Muslim leaders about the increase of the Ahmadiyah members in the country.
S187/IVF/T4	The charge against Ahmadiyah as “a deviant sect of Islam” was based on nine books on Ahmadiyah, though the MUI does not mention their titles and authors.
S188/IVF/T4	The crucial issue is that the MUI appealed to the state to implement the fatwa and asked religious officials at any level to disseminate it:
S189/IVF/T4	In this fatwa, the MUI specifically mentioned the Qadiani branch of Ahmadiyah.
S190/IVF/T4	Although the Lahori branch does not follow the Qadiani branch in believing in the prophethood of Mirza Ghulam Ahmad, Indonesian Muslims in practice do not see so much difference between the two factions.
S191/IVF/T4	For them, all Ahmadiyah members, whether they are Qadiani or Lahori, are the same.
S192/IVF/T4	It is perhaps because of this negligence that in the second fatwa, the MUI eliminated the word “Qadian” and charged all Ahmadiyah members to be deviant.
S193/IVF/T4	The MUI's fatwa has been a powerful tool to discredit Ahmadiyah members and their activities in Indonesia.
S194/IVF/T4	Prior to the downfall of Soeharto, there were a few cases where Ahmadiyah were discredited or assaulted.
S195/IVF/T4	For example, in September 1988, an Ahmadiyah mosque in Garut, West Java, was attacked, resulting in much damage, and the Muslim majority often threatened Ahmadiyah members.
S196/IVF/T4	An investigation by <i>Tempo</i> magazine disclosed that the hatred against Ahmadiyah in that area was triggered by brochures circulated by the Department of Religious Affairs and speeches in mosques, where Ahmadiyah was condemned as “infidel, anti-Christ, and communist” (1988).

S197/IVF/T4	Despite these minor cases, Ahmadiyah members in general were quite safe, thanks to the Soeharto regime that took action against any religious aggression.
S198/IVF/T4	After the downfall of Soeharto, Ahmadiyah members began to live in jeopardy.
S199/IVF/T4	Various Ahmadiyah concentrations became the target of attack.
S200/IVF/T4	On September 6, 2002, an Ahmadiyah complex in Maluku was assailed by a group of Muslims.
S201/IVF/T4	Four days later, in East Lombok, another mob attacked and destroyed an Ahmadiyah mosque.
S202/IVF/T4	This action was followed by burning at least eight houses and several other buildings owned by Ahmadiyah members.
S203/IVF/T4	In several towns in West Java, banners urging people to exterminate and burn Ahmadiyah's properties were erected.
S204/IVF/T4	In Kuningan, two mosques and 18 houses were destroyed.
S205/IVF/T4	Reports said that apart from the inflammatory banners, the attack was provoked by a decree issued by the local government several days earlier (Paras Indonesia).
S206/IVF/T4	The persecution against Ahmadiyah in Indonesia culminated in July 2005.
S207/IVF/T4	It all started in Bogor, where Ahmadiyah's Islamic boarding school known as Al-Mubarak Campus is located.
S208/IVF/T4	On July 8-10, 10,000 Ahmadiyah members held an annual meeting in this 4.5-hectare compound.
S209/IVF/T4	Before the event ended, however, a mob from the radical Islamic Defenders Front (FPI) and the Institute for Islamic Study and Research (LPPI) came to the location and launched their protest, forcing the organizers to immediately cancel the event.
S210/IVF/T4	Arguing that they did not do any harm, the Ahmadiyah leaders decided to ignore the mob's demand, which consequently made the mob angry.
S211/IVF/T4	Thus, they began to throw stones and other projectiles at the complex.
S212/IVF/T4	As the situation got worse, the police escorted all the participants out of the complex for the sake of their safety.
S213/IVF/T4	Ten days later, the local administration closed down the complex and ordered all Ahmadiyah's activities to stop, oddly arguing that Ahmadiyah's teachings could spark public disorder (Tempo Interaktif 2005b).
S214/IVF/T4	The second fatwa on Ahmadiyah was issued precisely in the middle of this crisis.
S215/IVF/T4	It was like pouring gasoline onto the flame; hatred and violence against Ahmadiyah rapidly burst and spread widely.
S216/IVF/T4	On February 4, 2006 an Islamic mob gathered in Dusun Ketapang, West Lombok.
S217/IVF/T4	They attacked and burnt every single house belonging to Ahmadiyah members.
S218/IVF/T4	The same atrocity also took place in Desa Gegerung, West Lombok.
S219/IVF/T4	Several Ahmadiyah members were escorted by the police, again, for security reasons.
S220/IVF/T4	The attack in Lombok caused deep psychological impacts on

	Ahmadiyah families, especially their children.
S221/IVF/T4	Many Ahmadiyah children in Mataram did not dare to go to school (Kompas 2006a).
S222/IVF/T4	Muchyidin Sayid Ahmad, a six year old Ahmadiyah student, complained that he was often bullied and hit at his school (Kompas 2006b).
S223/IVF/T4	When the perpetrators were asked why they persecuted Ahmadiyah?
S224/IVF/T4	The answer was clear, as Habib Abdurrahman Assegaf, the leader of the mob in Bogor's attack, said: "our movement is purely based on the MUI's fatwa" (Amanah).
S225/IVF/T4	What was the response of the MUI leaders witnessing such havoc?
S226/IVF/T4	In a hearing to the parliament following a series of violent attacks against Ahmadiyah, Ma'ruf Amien, the Chairman of the Fatwa Commission, explained that Ahmadiyah is a deviant sect of Islam, its existence is dangerous for other Muslims, and therefore "it has to be amputated" (Kompas 2005b).
S227/IVF/T4	However, Amien believed, as he said earlier to the press, that the MUI's fatwa did not trigger any violence (Detik.com 2005b).
S228/IVF/T4	Amidhan, Chairman of the council, rejected any accusation that the MUI's fatwa had triggered violence on Ahmadiyah.
S229/IVF/T4	His argument was that the fatwa had been issued for a long time (since 1980) and the violence had just erupted (Tempo Interaktif 2005c).
S230/IVF/T4	Similar arguments were also expressed by other MUI leaders.
S231/IVF/T4	Dien Syamsuddin, Deputy Chairman of the MUI, explained that "the role of <i>'ulama</i> is to guide Muslims what is true and what is wrong" – <i>ulama</i> always opposed violence; therefore, "there is no correlation between the issuance of the fatwa on Ahmadiyah and the anarchy that the people did" (Tempo Interaktif 2005c).
S232/IVF/T4	At the regional level, the refusal to accept responsibility was also expressed by the MUI members.
S233/IVF/T4	Mahally Fikri, Deputy Chairman of the West Lombok branch of the MUI, argued that "the MUI is not responsible because we never ordered or gave command to expel or destroy any facilities belong to Ahmadiyah.
S234/IVF/T4	All are initiatives of people themselves" (Suara NTB).
S235/IVF/T4	Such absurd explanations were immediately rebutted by liberal Muslim leaders who firmly believe that there is a very strong connection between the MUI's fatwa and the massive atrocities against Ahmadiyah.
S236/IVF/T4	Former President Abdurrahman Wahid stated on several occasions that the MUI must be responsible for the Muslims' barbaric attitudes towards Ahmadiyah.
S237/IVF/T4	In a gathering to celebrate his birthday on August 4, 2005, several Muslim leaders, such as M. Dawam Rahardjo, M. Syafii Anwar, and Ulil Abshar-Abdalla, condemned the MUI's fatwa on Ahmadiyah and other controversial fatwas, asking the council to withdraw their fatwas because of the violence caused by them (Detik.com: 2005c).
S238/IVF/T4	In a press conference held earlier, the coordinator of the Liberal Islam Network, Ulil Abshar-Abdalla, condemned the fatwa as "reckless and stupid" ( <i>konyol dan tolol</i> ) (Detik.com: 2005a).
S239/IVF/T4	Despite those oppositions, the MUI leaders never withdrew the fatwa.

S240/IVF/T4	Meanwhile, the government, on the other side, seems to have had no objection.
S241/IVF/T4	In fact, many government officials, particularly at the local level, have been involved in the atrocities against Ahmadiyah.
S242/IVF/T4	This was particularly disclosed by an investigative report released by the National Commission of the Indonesian Human Rights (Komnas-HAM) in September 2006.
S243/IVF/T4	The report clearly states that the atrocities against Ahmadiyah were triggered by the MUI's fatwa and was worsened by the government officials (such as police and high attorney) who helped implement the fatwa.
S244/IVF/T4	The government only took a slight concern about the issue when some human rights activists advised the Ahmadiyah members to seek asylum in Australia (Tempo Interaktif: 2006; Kompas 2006c, 2006e).
S245/IVF/T4	However, persecution against Ahmadiyah in Indonesia remains in the main list of the Annual Report on International Religious Freedom that the US Government released (see Bureau of Democracy 1999).
S246/IVF/T4	Since its formation in 1975, the MUI has issued eight fatwas on various religious minorities.
S247/IVF/T4	Apart from the fatwa on Ahmadiyah, there are fatwas on Shi'ism, Islam Jamaah, Darul Arqam, Inkar Sunnah, and Salamullah.
S248/IVF/T4	All of them significantly contributed to violent and intolerant actions in Indonesia.
S249/IVF/T4	The fatwa on Shi'ism was issued on March 1984.
S250/IVF/T4	There was no stated reason why the fatwa was made, but the issuance of the fatwa appears to have been ignited by the growing interest of young Muslims in Shi'ism.
S251/IVF/T4	Since the Iranian Revolution erupted in 1979, anything about Iran began to attract young Muslims, particularly students on university campuses.
S252/IVF/T4	They were actually interested more in the spirit of the Iranian revolution than in the theological doctrines of Shi'ism.
S253/IVF/T4	Despite significant differences between Indonesia and Iran (see Jones), MUI leaders and Indonesian clerics in general recognized no difference between Iran and Shi'ism.
S254/IVF/T4	Thus, the fatwa was released in anticipation of the worst.
S255/IVF/T4	Unlike the fatwa on Ahmadiyah, the MUI did not consider Shi'ism as a deviant sect of Islam ( <i>sekte sesat</i> ), but rather considered it as "a different theological school of Islam, which the Muslims should be careful about."
S256/IVF/T4	The fatwa considered Shi'ism as a dangerous sect because its teachings run counter the fundamental doctrines of Sunnism, such as:
S257/IVF/T4	The fatwa considered Shi'ism as a dangerous sect because its teachings run counter the fundamental doctrines of Sunnism, such as:
S258/IVF/T4	(1) Shi'ism rejects the Prophet's tradition that is not narrated from the Ahl al-Bayt;
S259/IVF/T4	(2) Shi'ism considers their <i>imams</i> as vulnerable ( <i>ma'sum</i> ), while Sunnism considers them as ordinary men;
S260/IVF/T4	and (3) Shi'ism does not acknowledge the Four Guided Caliphs ( <i>khulafa al-rashidun</i> ), a view largely embraced by Sunnism.
S261/IVF/T4	Given all these differences, the MUI "appealed the Sunni Muslims to

	increase their alert against any possibility of the Shi'ite influence.”
S262/IVF/T4	It is important to note that the MUI did not give maximum charge against Shi'ism, as some Muslim clerics in other countries did.
S263/IVF/T4	Shi'ism is an official religion in Iran, and the Indonesian government has a relatively good relationship with Iran.
S264/IVF/T4	Moreover, the number of Shi'ites in Indonesia (at least 3 million) is far more than the members of Ahmadiyah.
S265/IVF/T4	There are at least 3 million Shi'ite followers in Indonesia (Bureau of Democracy 2005).
S266/IVF/T4	It is thus not easy to charge so many people.
S267/IVF/T4	However, the MUI's fatwa remains influential in keeping Muslims' awareness of their “difference” from Shi'ism.
S268/IVF/T4	Immediately after the fatwa was released, several conferences were held in Jakarta and other cities and publications against Shi'ism became widespread (LPPI Jakarta 1998b).
S269/IVF/T4	The role of Middle Eastern authors, who were backed by Saudi money and published books and leaflet against Shi'ism, was also crucial in spreading the negative image of Shi'ism in Indonesia (for example, see Zhahier).
S270/IVF/T4	There were several cases of hostility against Shi'ite followers.
S271/IVF/T4	The last case took place in 2006, when a Shi'ite group called Ijabi was attacked by a Muslim mob.
S272/IVF/T4	Ijabi was founded in 2000 in Bandung by a renowned Muslim intellectual, Jalaluddin Rakhmat.
S273/IVF/T4	The group quickly spread to major cities in Indonesia.
S274/IVF/T4	On June 4, 2006, Ijabi opened its branch in Bondowoso, East Java.
S275/IVF/T4	However, this opening did not run well.
S276/IVF/T4	Several Muslims there felt annoyed with the presence of the group.
S277/IVF/T4	Later in September, they attacked a house of an Ijabi local leader but were quickly contained by the security guards.
S278/IVF/T4	The case was then passed on to the police and to the court.
S279/IVF/T4	The MUI's fatwas against other minority groups were released at different times.
S280/IVF/T4	The fatwa on Islam Jamaah was issued in the early 1980s.
S281/IVF/T4	It was driven by the rise of what was called Darul Hadis, a group who believe that salvation belongs only to <i>jama'ah</i> (literally, “group”) (on the controversy of Darul Hadis, see Thayib; Imron and Taufiq).
S282/IVF/T4	The fatwa on Darul Arqam was issued in 1994 as a response to the Malaysian government's move to ban the group earlier in the same year.
S283/IVF/T4	Darul Arqam was founded in Malaysia in 1968 by a Muslim cleric named Ashaari Muhammad.
S284/IVF/T4	It stirred up a huge controversy in Malaysian politics.
S285/IVF/T4	In Indonesia, the group was not so strong.
S286/IVF/T4	However, the MUI apparently did not want to take the risk after all

	branches of the group in Malaysia were closed (see Karim; Kerohanian).
S287/IVF/T4	The fatwa on Inkar Sunnah was also released in 1994, although the process of making the fatwa has been enacted since June 1983.
S288/IVF/T4	Inkar Sunnah is a derogative term for those who reject the tradition of the Prophet ( <i>hadith</i> ), in contrast to the majority of Sunni Muslims who believe that the <i>hadith</i> is an important source of Islamic laws in addition to the Qur'an.
S289/IVF/T4	The group of Inkar Sunnah in Indonesia emerged in the early 1980s and was led by Marinus Taka, Irham Sutanto, and Lukman Saad, ordinary men who had never been trained in Islamic sciences (Tempo 1983).
S290/IVF/T4	Among the fatwas on minority groups, the most virulent one was perhaps the fatwa that was issued on Salamullah or the Eden Community on December 22, 1997.
S291/IVF/T4	Led by Lia Aminuddin, a middle-aged woman, Salamullah called for a new faith.
S292/IVF/T4	The group believes in the continuation of revelation and the role of the archangel Gabriel.
S293/IVF/T4	In the beginning, Lia Aminuddin claimed to be a prophet, but later she changed her mind, claiming to be Gabriel, the archangel.
S294/IVF/T4	She told her followers that she routinely received revelation from God.
S295/IVF/T4	To demonstrate her miraculous status, she predicted various natural events such as a tsunami, earthquake, and flood, which did not materialize.
S296/IVF/T4	To spread its teachings, Salamullah held religious circles and published a weekly booklet and websites.
S297/IVF/T4	Based on Lia Aminuddin's teachings, particularly regarding the doctrine of the involvement of the archangel Gabriel, the MUI considered Salamullah to be an extreme deviant sect ( <i>sesat dan menyesatkan</i> ).
S298/IVF/T4	Intolerant and unfriendly attitudes against Salamullah were generally prompted by the fatwa.
S299/IVF/T4	Religious preachers refer to the fatwa if they speak about Salamullah.
S300/IVF/T4	In Friday prayer sermons, Salamullah was often discredited as a dangerous group.
S301/IVF/T4	Conservative groups such as the Indonesian Islamic Mission Council (DDII), the Islamic Defenders Front (FPI), and the Institute of Islamic Study and Research (LPPI) have campaigned to disband the group and prohibit its activities.
S302/IVF/T4	Because the government did not take any action, on December 26, 2005, a group of Muslims surrounded Lia Aminuddin's house, where Salamullah members assembled.
S303/IVF/T4	The mob began to attack the house and shouted seditious words such as "burn! destroy!"
S304/IVF/T4	After three days of besiegement, the police finally arrived at the location and escorted 48 members of Salamullah, including children, to the Jakarta Police Headquarter (Tempo Interaktif 2005d; Kompas 2005c, 2005d).
S305/IVF/T4	When the case of Salamullah went to court, all members of the group

	were set free but Lia Aminuddin was sent to jail for two years (Kompas 2006d).
S306/IVF/T4	The fatwa on the prohibition of the teachings of pluralism, liberalism, and secularism is part of the eleven fatwas that the MUI released in its seventh national congress on July 28, 2005.
S307/IVF/T4	This fatwa was the MUI's response to the emerging influence of the Islamic reform movement known as "Liberal Islam."
S308/IVF/T4	Since 1998, alongside with the rise of the radical Islam, Indonesian politics witnessed the emergence of liberal Islamic groups.
S309/IVF/T4	Some are old organizations like Paramadina13 and P3M, others are new like ICIP and Rahima.
S310/IVF/T4	All of these organizations try to bring modern notions such as democracy, freedom, and pluralism into Islamic discourse.
S311/IVF/T4	This is actually not new. Modernization of Islamic thinking had begun in the early twentieth century and has intensified since the 1970s.
S312/IVF/T4	Nurcholish Madjid, the most responsible Muslim scholar to introduce progressive ideas in Indonesia, began to modernize Islamic thought in October 1972, when he presented a paper in a public gathering in Jakarta.
S313/IVF/T4	The paper soon became controversial in the Muslim community.
S314/IVF/T4	Among the important ideas that Madjid presented in the paper were rationalization and secularization.
S315/IVF/T4	Madjid's movement (widely known as "neo-modernist" and also as a "renewalist group") had long been annoying Muslim conservatives, who felt irritated by new understandings of Islamic thought.
S316/IVF/T4	Madjid's objection to "Islamic state" and "Islamic political party" was considered blasphemous.
S317/IVF/T4	His idea of secularization had offended many Muslims who firmly believed in the unity of Islam and the state.
S318/IVF/T4	Madjid's organization, Paramadina, had also been considered sacrilegious due to its support to such ideas as religious pluralism and inter-religious marriage.
S319/IVF/T4	Madjid's project of Islamic reform was later supported by other Muslim leaders such as Abdurrahman Wahid, the former president, Dawam Rahardjo, a leader of the Muhammadiyah organization, and Djohan Effendi, an activist who chaired an international forum for religious dialogue (see further, Hefner; Anwar; Ali and Effendi).
S320/IVF/T4	The current liberal Islamic groups continue to maintain the ideas that Madjid and other Muslim intellectuals have disseminated.
S321/IVF/T4	ICIP, for instance, focuses on the idea of religious pluralism.
S322/IVF/T4	Through its programs, ICIP disseminates pluralist ideas into Islamic boarding schools ( <i>pesantrens</i> ) and other Muslim communities.
S323/IVF/T4	Rahima focuses on the empowerment of Muslim women.
S324/IVF/T4	It tirelessly campaigns for gender equality and the elimination of discrimination against women.
S325/IVF/T4	Among these organizations, the Liberal Islam Network (JIL), is perhaps the most vocal and the most controversial.
S326/IVF/T4	Founded in March 2001, the formation of JIL was a response to the rise of Islamic radicalism and conservatism in Indonesia (see Harjanto).

S327/IVF/T4	Like Madjid and other renewalist intellectuals, JIL members support modern ideas such as pluralism, liberalism, and secularism.
S328/IVF/T4	To disseminate its ideas, JIL uses various programs such as public discussion, media syndication, radio talk shows, and workshops.
S329/IVF/T4	The movement quickly became known through its many controversial articles.
S330/IVF/T4	Its position in defending Ahmadiyah and other religious minorities sparked the MUI's and other conservatives' anger.
S331/IVF/T4	Thus, when the MUI issued the fatwa on pluralism, liberalism, and secularism, many people think that it was addressed particularly at JIL.
S332/IVF/T4	There are several reasons why JIL became the main target of the MUI's fatwa.
S333/IVF/T4	First, JIL had been critical of the radical Islamic groups that sporadically emerged in the country.
S334/IVF/T4	Muslim radicals have close relations to the MUI.
S335/IVF/T4	Second, the intellectual discourse that JIL developed was generally against the conservative understanding predominant in the MUI.
S336/IVF/T4	In 2002, Ulil Abshar-Abdalla, the coordinator of JIL, wrote an article for which he was charged with a fatwa of death by the West Java branch of the MUI.
S337/IVF/T4	Third, JIL had been critical of the MUI's fatwas against minority groups, particularly Ahmadiyah and Salamullah.
S338/IVF/T4	In July 2005, JIL and other organizations formed People's Alliance for Religious Freedom and held a press conference where they denounced the MUI's intolerant fatwas (Kompas 2005a).
S339/IVF/T4	There was a rumor that I heard from someone close to the MUI that the council initially wanted to issue a fatwa directly on JIL and not on its ideas.
S340/IVF/T4	However, as there were many respected figures standing with JIL, the MUI ruled it out and stressed instead its ideas.
S341/IVF/T4	To ban JIL was also quite risky because it is not a religious sect like Ahmadiyah or Salamullah.
S342/IVF/T4	JIL is just a discussion group maintained by young Muslim scholars.
S343/IVF/T4	The JIL community develops Islamic intellectual discourse with new perspectives, and the MUI leaders are fully aware that difference of opinion in Islam is quite acceptable.
S344/IVF/T4	What concerned the MUI foremost, however, was that JIL's way of thinking could confuse Muslims who have no knowledge of such speculative discourse. So the fatwa was the solution (Gillespie).
S345/IVF/T4	The first attempt to attack JIL's office took place on August 5, 2005, just eight days after the MUI's fatwa on pluralism, liberalism, and secularism was released.
S346/IVF/T4	The plot started in al-Azhar mosque in South Jakarta, on Friday afternoon.
S347/IVF/T4	The Islamic Community Forum (Forum Ummat Islam), which comprises several radical and conservative Islamic organizations (Majelis Mujahidin, Hizbut Tahrir Indonesia, and Front Pembela Islam), apparently had arranged the attack.
S348/IVF/T4	Immediately after Friday prayers, Muslims gathered to listen to a "great sermon," often called " <i>tabligh akbar</i> ."



S349/IVF/T4	Several Muslim leaders gave their fiery speeches, condemning the West, Zionism, and global capitalism.
S350/IVF/T4	They also condemned liberal interpretation of Islam and liberal Islamic groups, with JIL in first place.
S351/IVF/T4	As usual, the audience aggressively cried <i>allahu akbar!</i> (God is great!), followed by other inflammatory words (Komunitas Utan Kayu).
S352/IVF/T4	While the speeches went on, 200 members of the Islamic Defender Front (FPI) marched east, approaching the JIL's office, but they stopped at al-Ikhlas Mosque in Salemba, about 3 kilometers from the office because the roads going to the JIL's office were blocked by the police and sympathizers with JIL (Kompas Online 2005a, 2005b).
S353/IVF/T4	After this failure, JIL's office received threats almost everyday.
S354/IVF/T4	Provocative banners were hung everywhere near the office, urging people to ban and expel JIL.
S355/IVF/T4	On September 6, the Islamic Community Forum urged the Regent of Matraman (where JIL's office was located), Herril Astapraja, to close down JIL's office (Kompas Online 2005c).
S356/IVF/T4	However the Regent said that he could not do that because JIL is a legal organization (Kompas Online 2005d).
S357/IVF/T4	Several people brought banners and erected them right in front of JIL's office, saying "We Support MUI's Fatwa and We Urge the Regent of Matraman to Expel JIL and Its Allies" (Kompas Online 2005c).
S358/IVF/T4	JIL's security guards have taken down such banners several times, but more banners quickly replaced them.
S359/IVF/T4	Finally, JIL decided to ignore the banners, on which the heat and rain eventually took its toll.
S360/IVF/T4	The last time I saw the shabby banners in front of JIL's office was in March 2006, several days before the fifth anniversary of JIL's founding.
S361/CON/T4	Let me conclude this article by quoting a report released by the National Commission of Indonesian Human Rights (Komnas HAM) on the case of Ahmadiyah:
S362/CON/T4	This finding clearly reveals that there is a strong connection between fatwa and violence in Indonesia.
S363/CON/T4	Although the report is about Ahmadiyah, it can be applied to other minority groups as well.
S364/CON/T4	Fatwa is often considered as a religious instrument that can unify Muslims in Indonesia (Kaptein).
S365/CON/T4	In the colonial period, this view of fatwa was perhaps true.
S366/CON/T4	In the present situation, however, fatwa often becomes an instrument of creating conflict and disruption among Muslims.
S367/CON/T4	The MUI's fatwa on the unlawfulness of bank interest issued in 2004, for example, has disturbed many Muslims because more than 90% of them put their money in conventional banks.
S368/CON/T4	Likewise, fatwas on religious groups, particularly Ahmadiyah and Salamullah, have clearly turned into fuel that combust Muslims' anger.
S369/CON/T4	There are some people who claim that fatwa is not legally binding.
S370/CON/T4	Some jurists and Muslim leaders embrace this view to deny that a fatwa is responsible for violent action.
S371/CON/T4	This view is certainly misleading, not only because there are many Muslims who still consider fatwa as "sacred statement," but also because

	fatwa is issued by the highest religious authority in the country.
S372/CON/T4	Moreover, fatwa has been institutionalized into a huge socialreligious network.
S373/CON/T4	As explained earlier, the MUI members come from various Islamic organizations, including Muhammadiyah and Nahdlatul Ulama.
S374/CON/T4	Consequently, a fatwa issued by the MUI will automatically effectuate a huge Islamic network.