COHESION IN TEXT DIFFERENTIATION:

A STUDY OF ENGLISH AND ARABIC

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This thesis sets out to investigate the role of cohesion in the organisation and processing of three text types in English and Arabic. In other words, it attempts to shed some light on the descriptive and explanatory power of cohesion in different text typologies. To this effect, three text types, namely, literary fictional narrative, newspaper editorial and science were analysed to ascertain the intra- and inter-sentential trends in textual cohesion characteristic of each text type in each language. In addition, two small scale experiments which aimed at exploring the facilitatory effect of one cohesive device (ie. lexical repetition) on the comprehension of three English text types by Arab learners were carried out. The first experiment examined this effect in an English science text; the second covered three English text types, ie. fictional narrative, culturally-oriented and science.

Some interesting and significant results have emerged from the textual analysis and the pilot studies. Most importantly, each text type tends to utilize the cohesive trends that are compatible with its readership, reader knowledge, reading style and pedagogical purpose. Whereas fictional narratives largely cohere through pronominal co-reference, editorials and science texts derive much cohesion from lexical repetition. As for cross-language differences English opts for economy in the use of cohesive devices, while Arabic largely coheres through the redundant effect created by the high frequency of most of those devices. Thus, cohesion is proved to be a variable rather than a homogeneous phenomenon which is dictated by text type among other factors. The results of the experiments suggest that lexical repetition does facilitate the comprehension of English texts by Arab learners. Fictional narratives are found to be easier to process and understand than expository texts. Consequently, cohesion can assist in the processing of text as it can in its creation.

KEY WORDS

COHESION   TEXT   PROCESSING

ENGLISH   ARABIC

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Transcription Convention

In an attempt to use a transcription convention which can be simple for both decoding and printing the Arabic texts, and which closely approximates to the spelling of written Modern Standard Arabic, many earlier studies have been drawn on (Beeston, 1970; Wher, 1980; Bulos, 1965; Williams, 1982; Al-Jubouri, 1983). The slight deviation here is, however, that the Glottal Stop /'/ is omitted from initial position and retained elsewhere. The reason is that it can be pronounced without explicit realisation as is the case with the indefinite article (an) or the preposition (in) in English. It should be noted that the colon (:) after a vowel represents a long vowel sound. Repetition of the same consonant (eg. a Habba = he loved) means a geminated letter. The following list includes only those Arabic sounds which either have no equivalent or may be written differently in English.

Symbol	Description
/'/	Glottal Stop
/9/	Voiced laryngeal fricative
/g/	Voiced velar fricative
/H/	Voiceless laryngeal fricative
/x/	Voiceless velar fricative
/q/	Voiceless pharyngeal stop
/d̲/	Voiced interdental fricative
/t̲/	Voiceless dental-alveolar fricative
/D̄/	Emphatic voiced dental stop
/T/	Emphatic voiceless dental stop
/Z/	Emphatic voiced dental fricative
/S/	Emphatic voiceless alveolar fricative
/sh/	Voiceless palatal groove fricative.

INTRODUCTION

Recent upsurge in the study of connected discourse has motivated an ongoing debate as to what makes a text and distinguishes it from a non-text and the way in which this text is processed and understood. The unity of text has been largely associated with some overt linguistic markers called cohesive devices. For Halliday and Hasan (1976), the cohesive "ties" of Reference, Substitution, Ellipsis, Conjunction and Lexis provide a string of sentences with texture which enables them to hold together as a unified text. Thus, cohesion which is realised by those surface signals is a textual phenomenon that is "common to text type of every kind" and as such it is "what makes a text a text" (ibid:13) and differentiates it from non-text. At the other extreme, cohesion is deemed neither necessary nor sufficient for the creation and identification of text (Brown and Yule, 1983). A text can be coherent without being cohesive (Widdowson, 1978). On the other hand, the presence of cohesion does not necessarily ensure textual well-formedness (Enkvist 1978). However, a more moderate view of cohesion has been put forward by de Beaugrande (1980). For him, the functional unity of text requires the presence of seven standards, ie. cohesion, coherence, intentionality, acceptability, situationality, intertextuality and informativity. Thus, cohesion is no more than one `standard of textuality' and not the sole factor in text creation. This dispute suggests the lack of a unanimous and well-defined theory of cohesion regarding its role in the organisation of text.

Neither is there such a definite theory concerning the role of cohesion in the processing of text. Rather, some processing models

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have thrown some light on the manner in which certain cohesive devices (eg. pronouns, noun phrases and ellipsis) are processed (Clark and Haviland, 1977; Sanford and Garrod, 1981, 1982; Mitchell, 1982; Tennant, 1981 among others). In addition, sporadic experimental work has examined how certain cohesive devices are utilized by different subjects (Fine, 1985; Rochester and Martin, 1977; McClure and Geva, 1983; Freebody and Anderson, 1981; Chapman, 1979, 1983; Karmiloff-Smith, 1977; Goddin and Perkins, 1982; Hartnett, 1981 among others). However, the only available taxonomy of the role of cohesion in text processing has been offered by de Beaugrande (1980). Again, he suggests that cohesive devices contribute to the principles of economy and stability which are crucial to the efficient processing of text. The above discussion points to the pressing need for more experimental work so that the explanatory power of cohesion can be adequately attested. It is firmly held here that until this explanatory power is detected, cohesion will remain a descriptive taxonomy void of any theoretical status.

This thesis sets out to shed some light on the role of cohesion in the organisation and processing of text. Thus, it attempts to further illuminate the descriptive and explanatory force of cohesion. Contrary to what is held about the homogeniety of cohesion, this textual phenomenon is conceived of in this study as a variable phenomenon that is determined by text-type among other factors. To validate such a claim, cohesion is examined here in three text types and in two languages, ie. English and Arabic. The three text types selected are: literary fictional narrative, newspaper editorial and science. This selection is based on the desire to compare three text types which can be easily identifiable in terms of

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their readership, reader knowledge, reading style and pedagogical purpose. And in order to ensure maximal comparability across English and Arabic the fictional narratives were selected from contemporary well-known authors in the two languages; the editorials were taken from newspapers written for the intelligentsia in both languages; and the science texts were extracted from introductory science textbooks meant for first year undergraduate students in English and Arabic.

In order to investigate the role of cohesion in the organization of different text types 60 texts (20 for each type and 10 for each language) were analysed. The analysis aimed at ascertaining the intra- and inter-sentential trends in textual cohesion characteristic of each text type and language. The method of analysis in this corpus largely draws on that proposed by Halliday and Hasan (1976) in their `Cohesion in English'. However, two points of difference between the Halliday and Hasan taxonomy and their method of analysis and the one pursued here need to be pointed out. One is that the present taxonomy investigates parallelism and thematisation in addition to Halliday and Hasan's five cohesive devices cited above. Second is that whereas those linguists explore inter-sentential cohesion on the grounds that a clause is coherent by virtue of its structure, intra- and inter-sentential cohesion is analysed in this corpus. The present method is in agreement with other existing taxonomies (van Dijk, 1977; de Beaugrande, 1980; de Beaugrande and Dressler, 1981 among others). Still a major deviation from Halliday and Hasan's (1976) taxonomy is that exophoric cohesion which refers to extralinguistic entities is also considered here.

Two small-scale experimental studies were conducted to

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account for the role of cohesion in the processing of text. The first study aimed at investigating the facilitatory effect of one cohesive device (ie. lexical repetition) on the comprehensibility of English science texts by Arab learners. The population of the study was 10 Arab postgraduate students specialising in science at Aston University. The second study attempted to explore the effect of the same cohesive device on the comprehension of three English text types, namely, fictional narrative, culturally-oriented and science texts. 60 Arab undergraduate students specialising in English at Kuwait University undertook the second experiment.

Quite significant and unpredictable results have been yielded by the textual analysis and the experimental studies. Different text types are found to cohere differently. Whereas fictional narratives essentially cohere via pronominal co-reference, editorials and science texts derive much cohesion from lexis. Although in terms of their conjunctive relations the three text types demonstrate great similarity, the additive conjunction is significantly more frequent in fiction than in editorial and science. The three text types seem to resist ellipsis and substitution. Since these results apply equally to English and Arabic, cohesion can be said to be a variable textual phenomenon in the two languages. Its manifestation is dictated by text type among other factors.

Although Arabic and English display great similarity in terms of the distribution of most of the cohesive devices, both languages markedly differ in terms of the frequency of those devices. It has been found that whereas Arabic tends to utilize pronominal and demonstrative co-reference, the additive conjunction `wa´ (and), the causal `fa´ (so), lexical repetition and parallelism more frequently

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than English, English uses comparative co-reference and lexical collocation relatively more than Arabic. Arabic also tends to repeat same themes in successive sentences while English, especially in editorials, uses semantically related themes.

Generally, the above results suggest that each text type and each language tend to utilize the cohesive device(s) most appropriate for its processing. Furthermore, the global trends in textual cohesion characteristic of each text type seem to be compatible with the factors cited above, ie. readership, reader knowledge, reading style and pedagogical purpose.

The results of the experimental studies confirm the assumption that lexical cohesion can facilitate the comprehension of English texts by Arab learners (Berman, 1984). The opacity of text which results from heavy ellipsis and substitution is significantly alleviated by lexical repetition which is typical of the subjects' mother tongue. As for which text type is easier to process, the fictional narrative text rates the highest and quite unpredictably the culturally-oriented text the lowest. That a fictional narrative text is easier to process is not surprising because long exposure to narrative discourse of different types, and the maintainance of time order make subjects process and comprehend it easily (Britton and Graesser, 1980; Urquhart, 1984). The experience of subjects seems to affect processing and comprehending text. The postgraduate students specialising in science understood the science text better than the undergraduate students did.

These findings are interesting because they contradict the view that cohesion is a homogeneous phenomenon. They

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also spell out some aspects of the explanatory power of cohesion. Contrary to the assumption that cohesion is neither necessary nor sufficient for textuality, cohesion has been shown to contribute to both the creation and processing of text, as other textual factors do. Besides, the results of the pilot study point to the pressing need of foreign learners of English to be appropriately acquainted with the potential resources of cohesion in this language, as Menke (1981) suggests.

However, the limited scope of this study leaves many unresolved issues open to future research. Future research may find it worthwhile to look at cohesive trends in a greater number of text types so as to further validate the variability of cohesion. Other languages may as well be studied in this respect. The facilitatory effect of each global cohesive trend in the respective text type may prove amenable to empirical verification. The impact of de Beaugrande's seven `Standards of Textuality´ on the organisation and processing of text can be scrutinised. These standards may be examined in different text types and languages. This can provide clues as to what kind of English texts should be studied by foreign learners.

The Plan of the Thesis

Chapter One reviews the related literature. It addresses the role of cohesion in the organisation and processing of text. It also points out the taxonomy of cohesion adopted in this corpus. Chapter Two examines the potential resources of cohesion in Arabic. The trends of textual cohesion in the three text types selected are presented in Chapter Three. Here, speculative cognitive

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interpretations of global cohesive trends are attempted. Chapter Four and Five focus on Parallelism and Thematisation respectively. The results of the experimental study are reported in Chapter Six. Finally, Chapter Seven summarises the main findings and offers some conclusions and pointers for future research.

CHAPTER ONE

Review of the Related Literature

1.0 Introduction

Cohesion involves the phenomenon of intra-textual cross-reference and semantic connectivity

> "The concept of cohesion is a semantic one; it refers to relations of meaning that exist within the text, and that define it as a text."
> (Halliday and Hasan, 1976:4)

Or, as de Beaugrande (1980:19) puts it,

> "Cohesion subsumes the procedures whereby surface elements appear as progressive occurrences such that their Sequential Connectivity is maintained and made recoverable."

The concept of 'sentence-connectedness' has been current at least since Quirk et al's (1973) treatment of the phenomenon in the creation of textuality, although the term 'cohesion' and its full development in terms of a comprehensive taxonomy, did not appear until Halliday and Hasan's (1976) investigation of the subject.

This thesis sets out to show that cohesion is not a homogenous phenomenon, realised in identical fashion in all textual functions. Rather, it is inherently variable, and its manifestation can be correlated with global characteristics of communicative event or text type. Just as, within sociolinguistic studies, grammatical and phonological variables can be shown to vary with speaking task (reading word lists, prose text; interview; and casual conversation), so within discourse studies, cohesion can be shown to vary consistently with text type.

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A second major concern of this thesis is to investigate the role of cohesion in the comprehension of text. Claims have been made about the importance of cohesion for textuality, or the semantic unity of text (Halliday and Hasan, 1976) which are at the very least debatable; if not actually without any theoretical or empirical basis. What is required is an answer to the question: why does cohesion exist at all, and what purpose does it serve in the cognitive processing of text? This thesis attempts to provide a limited answer to this question in the form of an investigation of reading comprehension in foreign language learners, with cohesion as the controlled variable.

Thus, this thesis addresses itself to the question of the variable realisation of cohesion, in relation to text type, and also to the question of the potential difference that cohesion makes to the comprehension of text. These two questions are cross-related in the empirical investigation reported in Chapter 6 of reading comprehension in foreign language learners, with cohesion as the controlled variable.

The organisation of this chapter is as follows:-Linguistic taxonomies for the classification of cohesive devices are first described in Section 1.1. Then in Section 1.2 theoretical concepts (such as exist) of the functions of cohesion in texts, together with the cognitive domain of the processing of text are approached, from the point of view of artificial intelligence, psycholinguistics and allied fields,. and the significance of cohesion within cognitive studies of text is discussed. The chapter concludes with a brief discussion of the issues this thesis intends to resolve.

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1.1 Cohesive devices : descriptive taxonomies

Cohesion is a semantic relation that holds between linguistic and extralinguistic entities in text and situation. This relation obtains when the interpretation of one linguistic element is to be sought elsewhere in the text or situation. This is an example.

> (1.1)   Wash and core <u>six cooking apples</u>.   Put <u>them</u> in a fireproof dish.
> (From Halliday and Hasan, 1976:2)

In this example, decoding the meaning of `them´ entails making recourse to `six cooking apples´ in the first sentence. Cohesion is represented by the semantic relation between `them´ and `six cooking applies.´ `Them´ is called a cohesive `tie´ (Halliday and Hasan, 1976). Cohesive relations are realised by a set of devices (ie. ties) which are potentially inherent in the system of language.

For English Halliday and Hasan (1976) are thought to have produced the most comprehensive taxonomy of cohesive devices (Huddlestone, 1978). In what follows is a brief profile of Halliday and Hasan´s (1976) (henceforth H & H) descriptive taxonomy of cohesive devices.

1. <u>Reference</u>

   1.1 Pronominals: he, she, it, they, etc.

   1.2 Demonstratives: this/these, that/those, etc.

   1.3 Comparatives: same, such, different, etc.

2. <u>Substitution</u>

   2.1 Nominal substitutes: one/ones, the same, so

   2.2 Verbal substitutes: do, be, have, do so, etc.

   2.3 Clausal substitutes: so, not.

3. Ellipsis

    3.1 Nominal ellipsis: deictic, numerative, epithet

    3.2 Verbal ellipsis: lexical, operator

    3.3 Clausal ellipsis: propositional, modal, general

    3.4 Zero.

4. Conjunction

    4.1 Additive: and, furthermore, etc.

    4.2 Adversative: yet, however, etc.

    4.3 Causal: so, consequently, etc.

    4.4 Temporal: then, hitherto, etc.

    4.5 Continuative: now, of course, etc.

5. Lexis

    5.1 Lexical reiteration: same item, synonym, superordinate and general term, eg. boy/boy.

    5.2 Lexical collocation: any pair of lexical items which stand to each other in some consistent semantic relation eg. boy/girl.

(These terms are not used here. See criticism p 26.)

The above list is by no means exhaustive (for a full discussion see H & H, 1976). However, two points need to be made at this stage. First, H & H consider cohesion as a relation obtaining inter-sententially. Therefore, some cohesive devices which connect clauses intra-sententially (ie. subordinating conjunctions) are excluded from their taxonomy. Second, since exophoric co-reference is also excluded from their taxonomy, first and second person pronominals are ignored by them. This thesis, however, accommodates all the coordinating and subordinating conjunctions and first and second person pronominals, because it attempts to investigate intra- as well as inter-sentential cohesive links and cohesion here captures both linguistic and extralinguistic entities.

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Other taxonomies of cohesion include, besides the above devices, two important cohesive ties. These are: Parallel Structure (Quirk et al, 1973; de Beaugrande, 1980; de Beaugrande and Dressler, 1981; Hartnett, 1981; Koch, 1981, 1983; among others) and Thematic Patterns (Enkvist, 1978; Williams, 1982, 1983; Grimes, 1975 among others). These two devices, which are investigated in this study, are spelled out below.

Parallel Structure

1. Single words: nouns, verbs, adjectives, adverbs and participles.
2. Phrases: prepositional, infinitive, participle and gerund.
3. Clauses: noun, adjective, adverb.
4. Sentences

It should be noted that only parallel clauses and sentences are examined in this thesis.

Thematic Patterns

1. Single linear progression of themes derived from immediately preceding rhemes.
2. Progression of same themes, and
3. Progression of derived themes (ie there is one `hypertheme´ and several `teilthemes´)

   (for full discussion, see Enkvist, 1973; 120-1)

In order for a taxonomy of cohesion to exhaust the potential resources a language has for intra- and inter-sentential connectedness, to a great extent, all the above cohesive devices must be accommodated. Such a taxonomy is adopted here.

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1.2 Role of cohesion in text

As stated above (1.0), this section addresses itself to the
functions of cohesion as seen by linguists, psycholinguistis and
workers within artificial intelligence. In other words, it is
primarily concerned with discussing the role cohesion can play in the
organisation and processing of text.

1.2.1 Issues in linguistic descriptions of cohesion

Study of the variability of cohesion as an aspect of
textuality is made problematic by the lack of a unanimous view as to
its nature and role in text making. Linguists have shown varying
conceptions in this concern. At one extreme, cohesion is held to be
the most significant contributor to the unity and continuity of
discourse (H & H, 1976). At the other extreme, it is considered
neither necessary nor sufficient for the creation and identification
of text (Brown and Yule, 1983).

For H & H (1976), cohesion provides text with its texture,
and as such it distinguishes a text from a non-text. This textual
phenomenon they argue, is essential for the semantic connectivity of
text, and without it a sequence of sentences fails to stand as text.
Although H & H recognize other textual factors in text making such as
`information structure´ and `thematic patterns´, they insist on the
exigency of the overt embodiment of cohesion which is "the most
important, since it is common to text of every kind and is, in fact,
what makes a text a text" (ibid:13).

A linguist´s view of cohesion is very much affected by the
way he conceives of text. For H & H, a text is merely a
conglomeration of linguistic entities which are tied to each other by

cohesive devices. For de Beaugrande (1980), on the other hand, a text is a `multi-level entity of language´ which should satisfy certain requirements. These he calls `standards of textuality´. Cohesion is no more than one standard, six others being required: `coherence, intentionality, acceptability, situationality, intertextuality and informativity´ (ibid:19). What identifies a non-text, for him, is one in which those standards are `strongly violated´.

In fact, de Beaugrande (1980) offers a more operational view of cohesion than H & H (1976). His set of cohesive devices captures both linguistic and extralinguistic entities. This is logical, in that a text derives much of its relevance from a `current´ and `recoverable´ context of situation. Cohesive devices, he suggests, are tied up and dependent on conceptual coherence (Carrell, 1982). After all, it is the semantic relation underlying a cohesive tie that incorporates connectivity into text (Brown and Yule, 1983). Those devices are made useful by virtue of the assumption that "the text is coherent" (de Beaugrande, 1980:134). Thus, unlike Hasan (1984), who views the coherence of text as contingent upon cohesive devices, de Beaugrande suggests that coherence can be achieved without them.

Two points need to be made at this point: first, as Widdowson (1978:29) demonstrates, a text without cohesive ties can maintain semantic continuity.

(1.2)   A. That´s the telephone.

        B. I´m in the bath.

        A. O.K.

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This text is coherent without being cohesive. Its semantic connectivity is provided by the connectedness of the illocutionary acts which underlie its propositions.

The converse of this is also true. The presence of cohesive devices does <u>not</u> necessarily ensure semantic connectivity. Here is an example:

(1.3)   I bought a Ford. The car in which president Nelson rode down the Champs Elysees was black. Black English has been widely discussed. The discussions between the Presidents ended last week. A week has seven days. Every day I feed my cat. Cats have four legs. The cat is on the mat. Mat has three letters.
(Enkvist, 1978:10)

Despite the presence of cohesive lexical items, this text is ill-formed. The distinction between `ill-formed´ text and `well-formed´ text is inseparable from and dependent on coherence (Enkvist, 1978).

The above examples invalidate H & H´s (1976) claim that cohesion can alone create the texture of text. In fact, H & H´s model of cohesion has come under fire from linguists who either disagree with them on the nature and function of cohesion or find some of their categories of cohesion rather inappropriately defined. H & H (1976:31), for example, view cohesion to lie in the "continuity of reference". Hasan (1984:22) recognizes a set of reference chains (ie. `identity chain´ and `similarity chain´) which integrate continuity in text by virtue of the "lexical and grammatical cohesive patterns" they incorporate into it.

Reference, for H & H (1976), holds between linguistic elements within the textual environment. It therefore subsumes endophoric relations (ie. anaphoric and cataphoric) and excludes any exophoric reference which connects linguistic elements with the

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objects representing them in the real world.   In this way, H & H view text   in dissociation from its social context,   unlike de Beaugrande, Enkvist,   Brown & Yule and others.

Reference   is   sometimes associated   with `sense´ (Lyons, 1977,   1982), discourse utterances or speech acts (Levinson, 1983) and with   experience (Palmer,   1976).   Thus,   referential relations   can embrace both linguistic and extralinguistic entities   (Kempson,   1977; Stubbs, 1983; van Dijk, 1977; de Beaugrande, 1980; Huddlestone, 1978).

H   &   H (1976) also insist on the exigency of the   explicit realisation   of reference and other cohesive devices.   But   reference can be either explicit or implicit.   Implicit reference is seen to be "preferentially addressed by different referring expressions" (Sanford and Garrod, 1982:102).   Similarly, conjunctive relations can be either explicit or implicit.   When implicit,   they appeal to the text user´s pragmatic   knowledge of the world which helps him make inferences   and supply them.   Moreover,   a reader builds a mental representation   of text (Schank,   1982),   from which he can retrieve implicit referential relations (Brown   and   Yule,   1983).   H & H   do   recognize   implicit reference,   but   insist   on its overt manifestation in text,   a   claim which attracts criticism.   ·

In   addition,   H   & H (1976) hold   that   reference   implies `specificity´.   Brown   and  Yule (1983) argue that objects undergo   a state of identity change.   Thus,   `them´ in H & H´s example (ie.   1.1 above) does not refer to the linguistic elements `six cooking applies´ but rather to hypothetical `apples´ in the actual world.   That is why two types of `anaphora´ are sometimes distinguished:   `referents´   and `antecedents´ (Huddlestone, 1978).   The first represents linguistic

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entities within text, and the second refers to the real objects outside the text boundary, in the real world.

By subsuming `pronominals´, `demonstratives´ and `comparatives´ under reference, H & H (1976) offer a narrow perspective of this relation. Lexical items and various pro-forms can also be used co-referentially (de Beaugrande, 1980; de Beaugrande and Dressler, .1981; Hobbs, 1978, 1982; van Dijk, 1977; Kalligren, 1979; Lyons, 1977, 1981). Due to the ambiguity of the term reference, the term co-reference will be used in this thesis, to mean reference to the same text-world entity by surface expressions (de Beaugrande, 1980).

H & H´s (1976) lexical relations are also criticised. Since lexical reiteration is mostly accompanied by `the´ or a demonstrative it shades into grammatical cohesion (Urquhart, 1983). For a demonstrative can perform the cohesive function without repeating the lexical item (eg. `these´ instead of `these ships´). Moreover, H & H´s category of lexical collocation is seen to have a wide application. Urquhart (1983) holds that all vocabulary items of a language collocate, and hence one cannot be fully certain which element collocates more strongly than another.

Cohesion is sometimes conceived of as the relation between old and new information (Grimes, 1975). For Grimes, cohesion is one aspect of textuality, and two other relations are important: `coherence´ and `staging´.

In terms of its function, cohesion, as stated above, is often deemed neither necessary not sufficient for the creation and identification of text (see examples 1.2 and 1.3´ above). A native speaker does not need cohesive devices to distinguish a text from a

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non-text. Drawing on his internalised knowledge of the linguistic rules of his language, he can intuitively identify text, because he "knows already - but without knowing that he knows" (H & H, 1976:1). Although H & H are well aware of the role of the reader's competence (Chomsky, 1965) in the identification of text, they consider the explicit verbal representation of cohesive devices the sole criterion in this identification. Thus, they level another criticism at their own claims.

Since cohesion, as argued above, cannot alone account for the organisation of text adequately, other factors must underpin text making. Three major features of textuality have often been identified: coherence, information structure and context of situation. Coherence, which is defined as the semantic relation obtaining between the illocutionary acts that underlie the propositions of discourse, is considered a major contributor to the continuity of text (Labov, 1970, 1972; Labov and Fanshal, 1977; Coulthard, 1977; Widdowson, 1978, 1979; van Dijk, 1977; de Beaugrande, 1980; de Beaugrande and Dressler, 1981; Carrell, 1982; Stubbs, 1983; Enkvist, 1973; 1978; Petofi, 1973; Brown and Yule, 1983; Hobbs, 1978, 1979, 1982; Lyons, 1977, 1981; Urquhart, 1983; Edmunson, 1981 among others). Coherence stems from the inter-relatedness of illucutionary acts (Labov, 1979). The fundamental problem, as Labov (1970:252) sees it, is to show how utterances follow each other "in a rational, rule-governed manner - in other words - how we understand coherent discourse". Cohesion, as stated above, assumes its value from coherence and not vice versa (de Beaugrande, 1980; Carrel, 1982).

Thus, a distinction must be made between `cohesive text´ and `coherent text´. On the surface textual level, a sequence of sentences can be cohesive without being coherent. On the other hand, a lack of cohesive devices does not preclude a string of sentences from obtaining pragmatic coherence. When a text is cohesive and not coherent, Enkvist (1978) calls it `pseudo-coherent´. This occurs when formal devices of cohesion "fail to reflect an adequate underlying semantic coherence in terms of textuality and contextuality" (ibid:110). Thus sentence connectedness calls for a kind of interplay of cohesion and coherence. This is particularly so for written discourse (Labov, 1970; de Beaugrande, 1980). Explicit realisation of cohesion is mostly needed when coherence is least obvious, and it is least needed when otherwise (Hobbs, 1982).

Another important textual feature is information structure. The flow of information in terms of old and new is also held to be a significant contributor to the unity and continuity of text (van Dijk, 1977). This flow of information is of particular relevance to English because:

> "In English discourse at least there seems to be a strong tendency to set up certain information as a ground first, and then introduce later information using that ground as a basis for evaluation and comparison."
> (Fries, 1979, in Halliday, 1982:219-20)

The flow of information can also enhance the coherence of text because it helps readers to "process..... to evaluate, and to relate a text to previously mentioned information" (Lautamatti, 1978:167). Thematic cohesion which connects the elements of text by a continuous theme is also deemed an important aspect of the semantic continuity of discourse (Gumperz et al, 1984). A text, thus, derives much unity and continuity from the

distribution of information in terms of old and new (ie theme and rheme) over its segments (Danes, 1968, 1974; Firbas, 1964, 1966, 1971; Williams, 1982, 1983; Enkvist, 1973, 1978 among others). The significance of the information structure of text has also been identified by a multiplicity of linguists and psycholinguists (Halliday, 1967, 1985; Lyons, 1977, 1981; Chafe, 1976; Clark and Haviland, 1977; Brown and Yule, 1983; Petofi, 1973; and Hobbs, 1982 among others). Although H & H (1976) recognise the role of information structure in the orgnisation of text, they exclude it from their descriptive apparatus of cohesion.

Context of situation is the third aspect of textuality discussed here. For some linguists, context of situation is more important than cohesion (Sacks, 1972; Urquhart, 1983). Situationality implants specific value into a text as well as providing one of the basic standards of textuality (de Beaugrande, 1980). The pragmatic value of discourse cannot be fully appreciated without making appropriate inferences about the location of utterances in a certain context of situation. The notion of context of situation is further tied up with the participant's verbal and non-verbal actions, experiences and world knowledge (Pelligrini, 1984), which make sentences "make sense". Some linguists recognize what is called `situational cohesion´ which is established when a string of sentences are produced in one speech act (Anderson, 1978). Situational cohesion is considered more important than factual cohesion. Besides, sentence interpretation is not solely contingent upon overt cohesive devices, but on the reader's ability to draw inferences about the structuring of speech acts in speech events as well (Hatch and Long, 1980).

The above discussion of the way linguists see the function of

cohesion in the creation of text clearly points to the inadequacy of cohesion as the sole aspect of textuality. Text is not merely a concatenation of linguistic entities: rather, it is a record of `Human Thematic Relations´ which captures people´s "beliefs, values and knowledge" (Schank, 1982:32).

It is important to recognize that linguistic structures on a page are not to be equated with whatever semantic continuity (ie. textual coherence) the reader supplies for those linguistic structures. Analysing text as product is too limited an activity. Text should be seen as the basis for a process. Fillmore (1982:251) suggests that a text is

"a linguistic part of an activity, the individual sentences being.....plans in this activity"

As a product, a text is

"a record of the linguistic half of an activity, the sentences of the text being traces used in carrying out the activity."

A text can even be more than that. It can be a vehicle of different linguistic, psycholinguistic and social entities. Allen (1982:15-16) remarks that a text can be viewed as

"an act, a message in a communicative situation,

a way of orgnizing some intended content,

a model of possible world,

a means of suppressing information,

an experimental field for grammatical and lexical analysis,

an application of a generative model,

a flow of linguistic data,

a reflection of an author´s temperament,

a genre piece,

a prognosis of certain reactions in the receiver(s)."
If text can straddle all these linguistic and extralinguistic issues, it certainly cannot be accounted for purely in terms of cohesive devices. Halliday (1982) identifies text as an entity which must have "structure, coherence, function, development and character."

We are now in a position to state that the function of cohesion is not as H & H 91976) propose, "to make a text", but rather to assist when necessary in such a creation.

However, a critical appreciation of the limitations of H & H's explanatory comments on cohesion need not prevent acceptance of their categories of cohesion for practical descriptive purposes. In opting to use H & H's categories, a distinction is made between explanatory adequacy and descriptive adequacy. H & H's taxonomy is descriptively adequate if supplemented with categories covering parallelism and thematisation. Their model is not, however, adequate in explanatory terms, since, as has been argued, fuller accounts of textuality must make reference to the reader's internal organisation of reality, his preferred handling of information structure, and his expectations vis a vis the particular text. The view adopted here is that cohesion is only one feature of textuality, and largely derives its value from the other textual features outlined above.

In general terms, the set of linguistic devices available for cohesive purposes is now well understood in terms of its realisational range. Three issues, however, are inadequately understood. First, the importance of cohesion for the maintanence of textuality has been exagerated. Second, while cohesion has been shown to be a variable device capable of showing authorship

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(Gutwinski, 1976; Enkvist, 1978; de Beaugrande, 1980), the importance of this fact has not been fully grasped. If cohesion varies according to author (speaker/writer identity), it is equally likely to vary according to communicative context and discourse event type, in the Hymes (1972) sense. This fact clearly opens up the phenomenon of cohesion to variationist studies on a much wider scale than hitherto appreciated.

A third issue, which has again not been adequately confronted within descriptive models of cohesion, is that of the status of cohesive elements for an account of the role of text processing. Until this issue is resolved, the phenomenon of cohesion will be limited to descriptive taxonomising. For this reason, some light is shed below on the explanatory apparatus of cohesion as evidenced in its contribution to the processing and comprehension of text.

1.2.2 Issues in text processing

It should be noted from the outset that the issue of text processing and comprehension is too vast to be thoroughly reviewed in the limited space of this section. Nor is text processing per se the pivotal concern of this thesis. Rather, the main interest here is to illuminate the role cohesion can play in text processing and comprehension. However, before getting to grips with such a task, a brief and general profile of some major processing models is worth attempting.

1.2.2.1 Models of text processing

de Beaugrande (1981) sets out some pre-requisite criteria which a comprehensive model has to meet so that it can be applicable

to different types of text, reader and reading tasks. These criteria
are briefly discussed below.

1. Processor Contributions

In terms of the reader's application of `stored knowledge`
and `prior expectations`, two models can be distinguished. `Bottom-
up` models view the processor as only analysing surface structures
(eg. letters, words, phrases and sentences). On the other hand, `top-
down` models see the processor as integrating hypotheses about the
material by drawing freely on his own world knowledge and experiences
"to constrain understanding and fill in materials" (de Beaugrande,
1981:263).

2. Memory Storage: Abstraction, Construction, or Reconstruction

de Beaugrande (1981) identifies three approaches in terms
of the effect of memory on text comprehension. The <u>abstractive</u>
<u>approach</u> suggests that only features from the presented material are
extracted and stored by the processor. These features are revived at
the time of recall. The <u>constructive approach</u> views the processor's
role as integrating the stored knowledge into the text from the very
beginning, and hence expanding and modifying the experience received
by memory. The modified version of experience is presented when the
material is recalled. The third approach, the <u>reconstructive</u>,
stipulates further contributions from the processor, even after the
experience is retained in memory. The `current state of storage` is
assembled by a `general organizational pattern` at the time of recall.

3. Utilization

Some models require that the processor utilize every

feature `on every language level´; others assume that the presented material be used occasionally so that a reader elicits cues and affirms predictions.

4. Automization

The quickness and complexity of understanding entails occasional automatic processing. However, some conscious operations call for more attention. de Beaugrande (1981) inquires the possibility of imposing some control on automatic processes when necessary.

5. Decomposition

The reader is visualised by some models to be decomposing the text in terms of `words and meanings´; other models see him as doing nothing of this. An intermediate position suggests that decomposition occurs when necessary.

6. Processing Depth

Experiments have shown that the stored knowledge and what is recalled markedly differ. It has also been found that disambiguating words facilitates their recall; locating them in contexts results in `deeper processing´; and drawing "follow-up statements for a sample is more effective than judging whether the sample is meaningful as it stands" (de Beaugrande, 1981:265).

7. Scale

Some models focus on recognition of <u>local-scale</u> elements, eg. `sounds, letters, words and sentences´; others concentrate on the comprehension of a <u>global-scale</u> `gist´ or `summary´ of whole texts. Current models integrate various scales. de Beaugrande (1981) posits

the question of how local and global scales are correlated.

8. Power

`High-powered` models aim at solving general problems;
`low-powered` models, on the other hand, stress the generation of
every activity by "a specific occurrence from the environment"
(ibid:265).

9. Modularity versus Interaction

A modular model stipulates little interaction between the
language levels and among the operations which understanding "traveres
in real time" (ibid:265). In an interactive model, this interaction
is steadily taking place. Modular models are easy to design and
examine, yet their operations are problematic. On the other hand,
interactive models eliminate "needless dead-end pathways" by "internal
interchange", though they are more difficult to design and test
experimentally.

10. Serial versus Parallel Processing

Processing operations occur either serially, one after
another or in parallel (ie `concurrently`). Although serial models
are amenable to measurement, the need has recently arisen for parellel
processing to account for "complex tasks performed in real time"
(ibid:266). Both serial and parallel processing does not explain real
human activities.

11. Freedom

The freedom of a model is determined by its applicability
to "all readers under all conditions"; its ability to deal with

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"idiosyncratic or solipsistic readings of particular readers" (ibid:266); and the possibility of modifying its operations when necessary. These issues are important for `empirical evidence.´

12. Opennes versus Closedness

Some models are closed to their own operations; others constantly expand as `new insights´ accumulate, without needing `new design´. Open models represent `understanding operations´ rather than being `exhaustive statements.´

13. Logical versus Procedural Adequacy

A model is <u>logically</u> adequate if it can accommodate `the demands of conventional logic´, whereas it is <u>procedurally</u> adequate if it represents the operations done in actual language use.

14. Learning

Various kinds of learning seem to accompany reading a text: "refining one´s predictions and expectations; applying knowledge gained early toward the processing of later sections; becoming familiar with content and style, and so forth" (ibid:267). A "learning" model is currently adapting its operations as understanding advances. This `learning´ factor, de Beaugrande (1981:167) suggests, "complicates model design".

15. Typology of Materials

A model should be able to account for different types of text (eg. `narrative versus expository prose´). However, most models are not designed to explain such differences or even some `obvious ones.´

16. Status of Programming

Some researchers argue that all models must be "stated as programs". But the computer is deemed incapable of accommodating "emotional, ethical or skeptical motives" (de Beaugrande, 1981:267). It is also rejected because it is `irreconcilable` with mind.

After this summary of de Beaugrande's (1981) `Criteria for Designing Process Models`, an important question arises: To what extent do existing models meet such criteria? To answer this question, a brief review of some models which represent the "bottom-up" and "top-down" approaches is necessary. For this reason six models, three for each approach, are discussed rather briefly below. The selection is based on what de Beaugrande (1981) considers as representative of each approach (for more models, see de Beaugrande, 1981).

1.2.2.2 <u>Bottom-up processing models</u>

As has been indicated above, the distinction between bottom-up and top-down model rests on the processor contributions. In bottom-up models, these contributions are limited to analysing sentences and their underlying propositions (see van Dijk, 1977, for a good example of this approach). In what follows, three models representative of bottom-up processing are discussed.

<u>Chomsky (1965)</u>

Chomsky's model is an example of a parallel model of the route from surface features to comprehension. This model stresses the processor's `competence` in converting `surface structures` into `deep structures` by means of certain formal rules. While heavily appealing to the listener/reader's tacit knowledge of linguistic rules, the

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Chomskyan model excludes the listener/reader´s world knowledge and the contribution of memory to understanding.

This model also calls for heavy utilization and decomposition, since every element has to be described and the text is to be decomposed into unreduceable units. Processing operations are held to occur automatically because Chomsky and his co-workers have used the notion of "abstract automata" (de Beaugrande, 1981).

Chomsky´s model operates serially and on a local scale since operations are carried out by "modular components". And because this model largely depends on formal logic, logical adequacy is inherent in it whereas procedural adequacy is `quite poor´ (Woods, 1970, in de Beaugrande, 1981). This model also lacks power because "generalization across wide ranges of texts" cannot be made out of the rules constraining its operations.

Since memory is excluded from this model, it does not take a stand on storage. Nor is processing depth an issue here because the notion of `deep structure´ is not related to it. This model treats all readers as a "homogenous community", and hence it does not account for various tasks. The fact that all sentences are processed in the same way makes Chomsky´s model lack freedom and to a great extent learning. Thus, it does not `envision´ a definite typology of material.

For these reasons, this model has been criticised for being inadequate for `effective programming´ and excluding many factors that perform important functions `in human communication´ among other things (see de Beaugrande, 1981, for other shortcomings of this model).

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Clark (1977)

Clark (1977) has developed a model which requires parsing sentences into their constituents and underlying propositions. But propositions here are synonymous with syntactic units (ie. surface sentences) rather than semantic units. However, the Clark model, unlike the previous one, captures world knowledge, and hence the processor contributions are not confined to handling sentence constituents and propositions. It requires making inferences which are admitted by the text producer.

. de Beaugrande (1981) views this model to have taken no stand on memory storage since Clark (1978) conceives of comprehension as grasping the speaker's intended message. Therefore, it is not clear whether this model is constructive or reconstructive.

This model is also very much concerned with linguistic analysis. Therefore, like the Chomsky model, it appeals heavily to utilization which is done on a local scale. In contrast, power is poor in it since sentences and propositions are 'closely interwined'. Thus, this model stipulates much decomposition.

The Clark model seems to be void of automization, freedom, logical and procedural adequacy and to a great extent processing depth. These criteria have not been addressed by this model (de Beaugrande, 1981). However, learning could be possible when listeners/readers "adapt to distributions of "given" and "new" information" (ibid:272).

Being restricted to sentence analysis, the model does not offer a typology of materials. Nor can it be programmed.

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Gibson (1971)

Gibson suggests that the processor's contributions are limited to "detecting, extracting, and utilizing the "features" within the presented material" (de Beaugrande, 1981:272). Thus, utilization which is modular is very demanding, especially for trained readers. Similarly, decomposition is heavy. This model clearly operates on a local scale, and power is quite poor in it because emphasis is laid here on "sounds, letters, spelling, grammar and syntax".

Some criteria such as automization, processing depth, memory storage and typology of material are not significantly appealed to in this model. On the other hand, logical and procedural adequacy and programming are not met by the Gibson model. In terms of learning, the model accounts for it "as skill acquisition through experience and transfer" (de Beaugrande, 1981:273). Freedom is also limited to "different developmental stages in children" (ibid:273). This model is open to operations pertaining to "feature extraction" whereas it is closed to operations of "information-processing".

The above three bottom-up processing models are, thus, limited in scope and fail to incorporate some of de Beaugrande's (1981) criteria. Nor do they account for the fact that different readers can extract different and incompatible meanings from the same text.

1.2.2.3 Top-down processing models

Unlike the bottom-up models which concentrate on surface features, top-down models account for processing the entire text. Again, three models are given below as an example of this approach.

Kintsch (1977)

Conceiving of text as a sequence of propositions, Kintsch (1977) suggests that a text is processed in "chunks" in terms of their underlying propositions. However, it should be noted that textual meaning is not reduceable to an (ordered) set of propositions.

For Kintsch, processing those propositions passes through several operations. Propositions are first linked and then matched against "stored world knowledge". Missing propositions are supplied by inferences. A superstructure which represents the `gist´ of the text is finally produced.

Kintsch´s (1977) model satisfies many of de Beaugrande´s (1981) criteria listed above. Utilization is heavily required, and memory storage appears to be both constructive and reconstructive. The fact that propositions build a "hierarchical network" makes them operate on local and global scales. The various operations of `deleting´, `generalising´ and `constructing´ carried out to form a `global representation´ results in a powerful model. Processing in this model runs in parallel, emphasising procedural adequacy. Learning is heavy in Kintsch´s model since comprehending the gist of text entails `cumulative operations´. In addition, the model is highly interactive, in that readers cannot separate "their knowledge of "facts" from their "inferencing"" (de Beaugrande, 1981:274).

However, although Kintsch concedes the importance of automization, processing depth, freedom and typology of material, he has not accounted for these criteria in his model. He also suggests that decomposition occurs when necessary and that his model is open because adding on a `parser´ is possible.

de Beaugrande (1981:275) describes Kintsch´s model as

correlating "functional diversification with functional consensus" ·in which its appeal lies.

Schank (1975)

Schank and his co-workers built `computer understanders´ which simulate human processors in reading stories and answering questions about or summarising what is read. Therefore, Schank (1975) has repudiated models of conventional linguistics and psychology. He also rejected `semantic´ memory in favour of `episodic memory´.

For Schank (1975), processing requires the reader to recover underlying concepts, draw inferences and make predictions about future expectations. Thus, the reader´s stored knowledge is significantly appealed to in this model. The model also appeals to the processor contributions which are "upgraded in scale and power to the applying of "scripts" as global sequences of routine actions commonly done in human affairs" (de Beaugrande, 1981:279).

The actual text is lightly utilized in Schank´s model, and hence it is highly constructive. The `understander´ skips certain words and focuses on those which are necessary for generating expectations. Decomposition, in this model, is concerned with events, actions and objects. In its use of `syntactic knowledge´ to convert word meanings into utterance meaning, Schank´s model is highly interactive.

Being designed for computers, this model entails serial processing and procedural adequacy. Finally, Schank´s model meets other important criteria such as freedom, learning and opennes. It calls for predictions on the processor´s part and it is constantly evolving. This model can also apply to texts of different

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typologies.

de Beaugrande (1981)

de Beaugrande´s processing model lends itself specifically to "connectivity search", ie. how textual occurrences relate to one another in the same subsystem or other subsystems. A stretch of text rather than a single sentence is the initial processing unit in this model. This stretch of text is held in working memory "under current limitations of attention, familiarity, and interests" (ibid:287). The end-product of processing, for de Beaugrande (1981), is a text-world model.

Processing, in this model, starts with the recognition of surface words and parsing them "into a structure of grammatical dependencies" (ibid:287). These grammatical dependencies are then correlated with "conceptual dependencies" which are crucial to building a text-world model. Conceptual dependencies could be either implicit or explicit in the text. This, in turn, calls for making inferences so that the "entire text can be modeled".

de Beaugrande (1981), however, criticises his own model to show that there is always a pressing need for evolution. This evolution is also necessitated by the fact that every text is unique. Moreover, texts markedly differ in terms of event-type, readership, reader knowledge, reading style and reader purpose. An integrated theory of processing which can account for all these factors does not exist at the present. Such a theory entails continual evolution as de Beaugrande (1981) suggests.

We have seen that there is a strong correlation between reading and its attendant comprehension and the notion of text (de

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Beaugrande, 1980). The researcher's conception of text very much affects his view as to how this text is processed and understood. A clear-cut distinction between the above models can now be made in this respect. Those models view text from two different but closely-related perspectives. One sees text as a conglomeration of sentences and underlying propositions; the other conceives of it as a `story' or `description'. A processing theory, thus, attempts to account for the manner in which those sentences or the message of that story are understood (Sanford and Garrod, 1981).

For de Beaugrande (1980), a text is an actual system whose `functional unity' hinges upon the interaction of its surface connectivity and underlying conceptual connectivity. In order for the underlying connectivity to be intact, the surface expressions must be compact. This, in turn, contributes to the "efficiency of textuality", which de Beaugrande (1980:132) describes as "processing the largest amounts with the smallest expenditure of resources". Thus, cohesive devices through which the surface connectivity of text is expressed can have a role to play in the processing and comprehension of text. This role is touched upon in what follows.

1.2.3 Issues in psycholinguistic description of cohesion

It has been suggested above that text processing and comprehension is very much affected by the way in which textual information is organised (Bower, 1976; Thorndyke, 1977). That is because comprehension of underlying concepts is largely contingent upon the activation of textual information (Ehrlich et al, 1982). Organising textual information is also held to have a bearing on the cognitive (ie. mental) representation of text which readers build

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(Sanford and Garrod, 1981, 1982; Schank, 1982; Schnotz, 1982; Stenning, 1977; Frederiksen, 1977; Pohl, 1982; Brown and Yule, 1983). Thus, processing and comprehending a text calls for integrating its micro-structures (ie. surface elements) and macro-structure (ie. global or semantic structure), in order for a processing model to be theoretically and empirically significant (Glowalla and Collonius, 1982). Since the prime concern here is to illuminate the contribution of cohesion, which is a feature of textuality, to text processing and comprehension of text, a brief discussion of this contribution now follows.

1.2.3.1 Role of cohesion in text processing

Textual information which is seen as having a bearing on the processing of text is partly realised through cohesive devices. These devices are normally provided by text producers (ie. speakers/writers) to serve as clues which point to the location of information. Speakers/writers are held to supply necesary links and to monitor the construction of the listeners/readers' inferences so that an accurate interpretation of text is maintained (Hobbs, 1978). This accurate interpretation requires relating incoming (ie. "given" in the technical sense) information which is introduced by cohesive devices to previous information. In other words, given anaphors which present incoming information have to be connected with their appropriate antecedents.

Connecting given anaphors with prior antecedents instigates a memory search which may be short or long depending on the distance between those anaphors and antecedents. Clark and Haviland (1977) suggest that when two sentences are placed side by side, the first

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sets up a context, in the light of which the second sentence is interpreted. This is part of what Clark and Haviland (1977) call the "Given-New Contract" between interlocutors in a communicative event. Violating this contract may result in problematic and long processing and comprehension of given information, they claim.

However, such a `contract´ is not always maintained. An antecedent may lie a few sentences away from its anaphor. In such a case, what determines ease or difficulty of processing is whether or not the semantic identity of the antecedent is carried over through the intervening sentences. If that identity is kept foregrounded in those sentences, locating the antecedent and eventually connecting it with its anaphor becomes easy and fast (Mitchell, 1982). Otherwise, processing given information would be more demanding. In addition, it is not always the case that placing anaphors and antecedents in adjacent sentences makes processing of given information easier or more rapid, because the activation of the principle of `semantic distance´ (Sanford and Garrod, 1981) is contingent on contextually determined conditions. Therefore, placing given information initially in the sentence may or may not facilitate its processing.

Another factor affecting the processing of given information is the semantic relationship between antecedents and anaphors. This relationship is affected by the degree of `conjoint frequency´ (Wilkins, 1971). That is, items which occur too frequently in discourse are said to have a `high-conjoint frequency´. The opposite is true. Items which are less frequent have a `low-conjoint frequency´. High-conjoint frequency items (eg. bus-vehicle) are more familiar to the reader, and hence their relationship is clearer than low-conjoint frequency items (eg. dog-monster). It follows that when

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the relationship between anaphors and antecedents is clear, processing anaphors may be more efficient and rapid because the reader can easily connect them with their antecedents (Sanford and Garrod, 1981). Less frequent anaphors stipulate making inferences which render their processing more demanding on the processor's part.

The third factor which influences processing given information is whether antecedents are explicitly or implicitly realised in text. Normally, explicit antecedents are easier to locate, which facilitates and expedites processing their anaphors. Implicit antecedents, on the other hand, entail making bridging inferences which, as suggested above, puts a heavier demand on the reader. It is claimed that processing anaphors which refer to implicit antecedents is more problematic. However, this is not always the case, because explicit antecedents may require making inferences. In "I saw two people. The woman was a doctor" (Mitchell, 1982:97), the given information (ie. `the woman') is presumably identifiable to the reader, but in order to supply missing information he has to construct a set of propositions (eg. one of the two people was a woman). Hence, an antecedent is created and processing given information becomes feasible. Thus, making appropriate inferences which puts a heavier demand on the reader is not limited to implicit antecedents.

The above example shows that definiteness does not always indicate specificity of reference. Chafe (1977) gives a similar example. In "I saw the milkman", the definite term `the milkman' has no prior mention in the text. Rather, missing information is available in the situation. Retrieving this missing

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information stipulates that the hearer/reader draw on his pragmatic world knowledge. The hearer/reader is presumably familiar with `the milkman´, and hence processing this given information is not problematic. Thus, if sufficient clues of anaphoric reference are available, a search for referential relations is still carried out (Sanford and Garrod, 1981). Semantic relations, therefore, go hand in hand with syntactic signals in the search for a semantically related antecedent.

Some researchers view `phoricity´ which is associated with definiteness (Rochester and Martin, 1977) as requiring some kind of decision-making on the reader´s part. A `phoric´ (ie. definite) noun phrase is one which has to be interpreted elsewhere in the text or situation. A non-phoric (ie.. indefinite) expression, on the other hand, does not require further information. Thus, definite noun phrases are not necessarily always easier to process and interpret than indefinite ones.

Pronouns are another cohesive device which introduces given information. Processing pronouns is sometimes believed to be even more problematic than noun phrases (Tennant, 1981). A reader has not only to assign an adequate antecedent, but he also has to locate the concept embodying it in the real world. Such a concept is not explicitly stated in the text. Therefore, in order for pronouns to be properly processed, two possibilities arise. One is to generate various sets of objects to which a pronoun might belong; the other is to generate "new concepts that represent the various sets" (ibid:117). However, noun phrases can equally refer to events and concepts that are either explicitly or implicitly expressed in the text or situation. Nevertheless, definite noun phrases which refer to

explicit entities in the text are still held to be easier to process than pronouns. That is because those specific entities are presumably known to the reader. de Beaugrande (1980), however, argues that retrieval of co-referents is not difficult if anaphoric relations are maintained.

As for processing ellipsis, Tennant (1981) suggests that it is more problematic than that of pronouns and noun phrases. He claims that a reader has to identify the instance of ellipsis and locate its appropriate antecedent. Besides, ellipsis implies contrast, which renders retrieval of missing information more burdensome. However, this is not always true. Processing ellipsis does not necessarily introduce greater difficulty. There is a sort of tension between economy and specificity/explicitness. Using ellipsis is sometimes called for by the `economy´ principle of text (de Beaugrande, 1980). Thus, ellipsis can contribute to the efficient processing of text if it is not unduly frequent. For heavy ellipsis may blur the meaning of text (de Beaugrande, 1980).

In very general terms, the implication of these various studies of the contribution of specific linguistic features to textual difficulty is that there is no well defined set of linguistic features which in themselves can be identified as causing difficulty. Each linguistic feature is dependent on a range of co-textual and contextual factors for the degree of difficulty caused.

In addition, since every text is unique in itself, processing those linguistic features may vary from one text to another within or across event-type. For example, processing pronouns which

might be easy in a literary narrative may not be so in a scientific text as will be shown in Chapter 3. Besides, processing a text is not wholly dependent on those linguistic features. Schank (1975), it has been remarked above, suggests that only those words which are necessary for the reader's expectations and predictions are picked up by the 'understander'. Thus, the actual text is slightly used in Schank's model. Finally, processing cohesive devices is very much affected by the above-cited factors of readership, reading style, reader knowledge and purpose as will be displayed in Chapter 3.

The above rather brief discussion has shown that most researchers have attempted to bring to light how one or more cohesive devices are processed and comprehended. In other words, none of those researchers has endeavoured to offer a definite taxonomy which shows the function all the cohesive devices outlined in 1.1 above perform in text processing and comprehension. However, such a taxonomy has been provided by de Beaugrande (1980). This is the object of the next discussion.

1.2.3.2 <u>de Beaugrande's taxonomy of role of cohesive devices in text processing</u>

As is the case with other researchers, de Beaugrande's (1980) view of the role cohesion can play in the processing and comprehension of text is largely dependent on his conception of the notion of text. It has been stated above, that, for him, a text is an actual system whose 'functional unity' is established by the interaction between its surface and underlying (conceptual) connectivity. The surface connectivity of a text is expressed through cohesive devices, which he considers necessary contributors to the textual principles of economy and stability. These two principles

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are, in turn, relevant to what he calls "efficiency of processing" which means "processing the largest amounts with the smallest expenditure of resources" (de Beaugrande, 1980:132). Thus, cohesive devices can assist in text processing and comprehension. Each of those devices is touched upon separately below.

1.2.3.2.1 Recurrence

Recurrence of lexical items, de Beaugrande (1980) suggests, facilitates processing if ambiguity is avoided and the identity of reference is kept intact. However, using words of different parts of speech (eg. noun, verb, attribute, etc.) with the same reference helps text producers "create new language items" (ibid:136). Similarly, using paraphrase and synonyms rather than exact repetitions highlights the textual principles of `economy´ and `stability´, and hence contributes to the processing of text.

1.2.3.2.2 Definiteness

Using the definite article to denote specific entities is relevant to the connectivity of discourse. It creates "new background knowledge while pretending to keep it alive" (ibid:138). In other words, definitess helps to activate background knowledge.

However, a text can begin with either a definite or indefinite expression for a `special effect´. A definite noun phrase engages the reader´s interest who expects to know more about that specific entity. An indefinite noun phrase, on the other hand, requires the reader to supply `attributes´, `locations´, etc. and hang them onto given nodes. Consequently, de Beaugrande suggests that if definiteness were only utilised with "uniquely identifiable objects",

communication would not be feasible. The need for definiteness, he argues, is necessitated by "the connectivity of stored knowledge" in actual situations. In these situations "efficiency is more crucial than exactness" (ibid:144). Thus, definiteness can contribute to efficient processing.

1.2.3.2.3 Co-reference via Pro-Forms

This category subsumes pronouns, deictics and what H & H (1976) classify as the nominal substitute one/ones. These are derived from their co-referring expressions, but markedly differ from those expressions. Pro-forms are "usually shorter", "comparatively empty of inherent content" and they have a "wider range of potential application" and "obey constraints upon their occurrences" (de Beaugrande, 1980:145). Because these pro-forms contribute to the compactness of surface structure, they represent a kind of trade-off between "compactness and rapid access". Thus, they largely contribute to the economy and stability of text especially if the identity of reference is clear.

1.2.3.2.4 Exophoric Reference

Exophoric reference obtains when the meaning of a pro-form is to be decoded by making recourse to the situation rather than via a co-referent expression explicitly stated in the text. Therefore, exophoric reference relates language entities to the context of situation from which language cannot be divorced. Due to the relevance of situation to the interpretation of certain linguistic items, exophoric reference plays a role in processing and comprehensing a text.

Interpretation of exophoric pro-forms (eg. she's not here)

appeals to the shared knowledge of interlocutors. In other situations exophoric reference may apply to entities which do not have "conceptual classification: (eg. What on earth is that?)" (de Beaugrande, 1980:151). In such a situation, the speakers expectations which are presumably known to the hearer are violated.

Exophora is also useful when interlocutors have contrasting views about what is happening (eg. This is a holdup. We're not kidding)" (ibid:152). Thus, exophoric reference presupposes the "mutual identifiability of the communicative participants, though more directly for speaking than for writing" (ibid:152).

1.2.3.2.5. Ellipsis

This device has been commented upon above. Ellipsis, like co-referential items, is useful for "repudiating" expected content. As has been stated above, ellipsis represents a kind of trade-off between "compactness and rapid access". Its appropriate realisation in text demonstrates the "regulatory controls on actualization" (ibid:158). Thus, ellipsis does not necessarily render text comprehension difficult as Tennant (1981) assumes.

1.2.3.2.6. Junction

de Beaugrande (1980) suggests that the overt realisation of junctive relations is not always necessary. However, their presence can facilitate the processing of text if they are not "unduly frequent". Explicit conjunctions, he states, signal the conceptual relations underlying sentences, though, in certain cases, they can be inferred via world knowledge. World knowledge and text knowledge have a great bearing on the processing of text for de Beaugrande (1980).

In default of overt conjunctions, the conceptual relations underlying ·sentences can be arrived at through juxtaposing parallel sentences. This is the only indication of the role of parallelism in de Beaugrande´s taxonomy. Thus, parallelism, like the other cohesive devices, can contribute to the economy of text and eventually facilitate its processing.

However, the above views on how cohesion assists in text processing and comprehension remain theoretical and speculative and need empirical verification. For this reason, the next section provides a profile of some experimental work on different aspects of the role of cohesion in text processing and understanding and on text-type comprehension.

1.2.4 Experimental work on cohesion

Most of the experimental work on cohesion has attempted to show how the use of cohesive devices is determined by cognitive, social and age factors. Some important results in this respect are reported below.

1.2.4.1 Cohesion as a cognitive index

Trying to investigate some interactional and cognitive factors in relation with normal and mentally disordered subjects, Fine (1985) found that these subjects demonstrate differences in their utilization of cohesive devices. Disordered readers usually use contextual information differently. They tend to use the linguistic and cognitive cues available in the textual environment as a way of organising their language and introducing information. Consequently, if the available information is ambiguous, disordered readers are less capable of generating unambiguous information and constructing coherent

discourse than normal readers. This shows how limited the cognitive capacity of disordered readers is.

Normal readers, it has been found, use a causal or temporal conjunction to specify intra-sentential relations more often than mentally disordered readers (Rochester and Martin, 1977). Normal readers also utilize endophoric devices more frequently than disordered readers do.

Some researchers have gone a step further into the mental processes of text producers. A correlation between the use of certain cohesive devices and thinking has been suggested. Some devices indicate the writer´s "focus of attention"; others show different mental processes such as "comparison" and "classification" (Hartnett, 1981).

1.2.4.2 Cohesion as a social index

The fact that mentally disordered subjects heavily depend on textual information in dissociation from situational information points to their detachment from their social setting.

It has also been shown that the social status of subjects has a bearing on their use of cohesive devices and generation of coherent texts. Freedle et al (1977) found that when a story was retold by an individual of different social status, its structural complexity of lexicon and syntax was affected more than when it was retold by the intended listener/reader. Well-educated subjects were found to use certain cohesive devices (eg. adversative conjunctions) selectively to mark focus more often than uneducated subjects (McClure and Geva, 1983).

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1.2.4.3 Cohesion as an index of age

The age of subjects plays a prominant role in employing certain cohesive devices. In a normal speech situation, children use exophoric reference to indicate extra-linguistic context (Karmiloff-Smith, 1977). She also found that children up to the age of 12 can neither explain nor utilize conjunctions adequately. Younger children were found to make fewer inferences than older children (Osmanson et al, 1978).

1.2.5 Experimental work on text-type processing

Some experimental work has been reported on the differences between text types in terms of their processing and comprehension. Since this issue is dealt with in Chapters 3 and 6, it seems worthwhile to report the results of one study.

Britton and Graesser (1983) conducted six experiments to investigate the difference in comprehension between narrative and expository discourse. They suggest that narrative texts are easier to comprehend than expository texts for several reasons. One is that narrative texts are time-ordered. They describe sequences of events which are presumably familiar to readers who "experience them so often" (ibid:51). Second, narrative material is more familiar to people than expository discourse. Narrative texts also maintain a regular and consistent structure, which may facilitate their comprehension. Expository texts, on the other hand, do not maintain such a consistent structure because exposition is not "subject to temporal constraints, causal constraints, and other constraints of "human nature"" (ibid:52). Finally, narrative texts are basically used to introduce concepts. It has been suggested that "descriptions

of sequences of events may have a developmentally privileged status in informational processing" which "may facilitate the processing of narrative texts" (ibid:52).

The above brief discussion has shown how limited empirical work on cohesion is. The evolution of a uniform taxonomy of the role this phenomenon can play in text processing and comprehension calls for much more experimental work. However, the above review provides a glimpse of the function cohesive devices can perform in text understanding. An overview of this function is spelt out below.

1.2.6 Overview of role of cohesion in text processing

In terms of the role of cohesion in text processing and comprehension, two extremes can be identified. At one extreme, cohesion is held to be the key factor in text comprehension (Chapman, 1979). At the other, explicit cohesive devices are deemed irrelevant to text processing and interpretation (Freebody and Anderson, 1981; Steffensen, 1981; Carrell, 1982). Between these two extremes, there is a moderate view which acknowledges some role for cohesion in the processing and comprehension of text (de Beaugrande, 1981).

The view adopted here opts for the more moderate one. It is, therefore, held here that cohesive devices can assist in the processing and understanding of text as they do in its creation. But extent of this contribution remains a matter to be empirically verified. To this end, a limited pilot study which examined the role of one cohesive device (ie. lexical repetition) in the comprehension of three text types is reported in Chapter 6.

The above review of artificial intelligence and psycholinguistic descriptions of cohesion points to the fact that many

issues are still unresolved. These are outlined in the next sub-section.

1.2.7 Unresolved Issues

The limitedness of the experimental work on cohesion leaves a number of issues unresolved. For example, the literature is void of any definite taxonomy which accounts for the function of all cohesive devices, as listed in 1.1 above, in the processing and comprehension of discourse. Nor has their facilitatory effect so far been empirically examined. A model of processing, de Beaugrande (1981) suggests, must be designed to accommodate different text typologies among other things. A third issue is the interaction of cohesion and other textual and contextual factors such as coherence (ie. underlying conceptual connectivity), pragmatic world knowledge, context of situation, information structure among others. The impact of this interaction on the processing and understanding may be amenable to experimentation. Fourth, the density of certain cohesive devices in particular text types (eg. lexis in science) is not clearly understood. Finally, the role of parallelism and thematisation in this process is worth highlighting.

Some or all of the above issues may prove fruitful for future research. Future research should attempt to resolve those issues · so that an adequate explanation for cohesion can be scientifically pinpointed.

1.3 Focus of the present study

It is not claimed here that this study will endeavour to explore or verify all the above unresolved issues. Such a task is well beyond its scope. However, in the limited space available here

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two major issues are scrutinised. One is to try to show that cohesion is a variable rather than homogeneous phenomenon which is realised differently in different text-types. This issue calls for a basis for comparison. For this reason, Chapter One has examined in some detail the range of cohesive devices in English. The range of cohesive devices available in Arabic is set out in Chapter Two. Chapter Three examines variability in the realisation of cohesion in three text types, in both English and Arabic, the purpose of this being to show that variability is not restricted to one language.

The second issue this thesis sets out to explore is the impact of cohesion on reading comprehension. The question of what exactly cohesive devices in texts are for was explored in 1.2. It was argued that experimental work is required which will identify the difference that cohesion makes to the comprehension of text. Chapter Six reports a small-scale study of the role of one cohesive device (ie. lexical repetition) in text comprehension by a group of foreign learners of English. That role of cohesion is examined in three text types.

Finally, aspects of cohesion which are not accounted for, within linguistic descriptive models or in process-based models, are examined in Chapter Four and Chapter Five, which consider parallelism in text and thematisation respectively.

Chapter Seven provides a summary and discussion of the study of the variable realisation of cohesion in three text types, and the experimental work on the role of cohesion in reading comprehension.

CHAPTER 2

Cohesion In Arabic

2.0 Introduction

Since this thesis sets out to investigate differences in the realisation of cohesion between English and Arabic, a basis for comparison is required. Although the grammatical system of Arabic is well worked territory, devices for textual cohesion have received comparatively little attention. For this reason, this chapter sets out the major cohesive devices of Arabic.

It seems sensible to describe the cohesive devices of Arabic using the same framework of reference as that which has been utilised for English, in the present study, namely the descriptive taxonomy developed by Halliday and Hasan (1976). While the major descriptive categories of Halliday and Hasan - Reference, Substitution, Ellipsis, Conjunction and Lexis - can be applied to Arabic, a description of cohesion in Arabic would be incomplete without reference to two phenomena which do not fall within the Halliday and Hasan framework, namely, Thematic Patterns and Parallelism.

The decision to apply the Halliday and Hasan taxonomy is based on its comprehensiveness and its applicability to the two languages. Descriptive adequacy is not equivalent to explanatory adequacy, however, as has already been argued in Chapter One. For explanation of the necessity for textual cohesion and its role in text processing, analysis must look elsewhere.

Before setting out the cohesive devices of Arabic, it is worth mentioning that such literature as exists (Williams, 1982, 1983;

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Koch, 1981, 1983) does not examine the language systematically under all the cohesive devices available in the literature (See Chapter 1, Section 1.1 for a suggested taxonomy of cohesion). Attempts to investigate cohesion in Arabic have not shown how this textual phenomenon is realised in different text types. Nor have they accounted for the role cohesion can play in the processing and comprehension of text. However, those studies are interesting, though they do not amount to a full statement.

A brief evaluation of Williams' (1982) and Koch's (1981) works on cohesion in Arabic is given below.

<u>Williams (1982)</u>

Aiming at ascertaining the differences between English and Arabic in terms of their textual development and cohesion, Williams (1982) examined four newspaper texts, two English and two Arabic. The limitation of his data makes him concedes the fact that his results may not be too reliable to draw any generalisations about newspaper writing.

For textual cohesion, Williams (1983) opts for Halliday and Hasan's (1976) five categories of cohesion, namely Reference, Substitution, Ellipsis, Conjunction and lexis. However, finding Halliday's (1967) notion of theme-rheme inadequate for a definition of the Arabic sentence, he adopts the `Functional Sentence Perspective' of the Prague School of Linguistics. That is because Arabic uses a word order different from that used in English.

Williams (1983:126) found that written Arabic repeats "the theme in successive clauses more frequently than English does, even when it is possible to omit it". The clause, in written Arabic, tends

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to derive its theme from the theme or rheme of the previous clause. Inter-sentential relationships are explicit in written Arabic while these are left implicit in English. Ellipsis is not favoured by Arabic written discourse. Although Williams mentions parallelism in passing, he does not explore its cohesive function in Arabic. Thus, his taxonomy of cohesion is not complete.

He also found that Arabic tends to use most of those cohesive devices more frequently than English does. For example, personal pronouns, additive, causal and temporal conjunctions and lexical repetition are much more frequent in Arabic. On the other hand, English uses ellipsis, comparative reference and adversative conjunction more frequently. The difference between the two languages in the use of demonstrative reference and the definite article is not great.

Williams (1982) has accounted for those differences in linguistic terms. That is, he attributes the high frequency of personal pronouns to the nature of the Arabic verb which contains a pronoun; the predominance of `wa´ (and) in Arabic is ascribed to the tendency of Arabic to express inter-sentential relationships explicitly; and lexical repetition is referred to the nature of the Arabic prolific root of words. Although Williams´ explanations are superficially adequate, other linguistic and rhetorical reasons can be given. These are expounded in Chapter 3. Moreover, Williams´ conception of sentence in Arabic draws on its definition in traditional (ie. classical) Arabic. Although this is a valid definition, a more operational definition must be worked out so that English and Arabic texts can be comparable in terms of the segments of text. As a syntactic unit, an Arabic sentence is equivalent to the

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English clause. But an English sentence is also a semantic unit which may consist of one or more clauses (ie. syntactic units). Such a semantic-syntactic unit should be the basis of the suggested definition which is given at the end of this chapter. Using the traditional syntactic definition, Williams (1982) may be said to have confused intra- with inter-sentential relations.

In addition, Williams has not attempted to explore the cohesive functions of those devices in other text types. Nor has he tried to pinpoint the role of cohesion in the processing of text. In fact, he has not stated whether he considers cohesion a homogeneous or variable phenomenon. Nevertheless, his study remains interesting and his results are valid as will be seen in Chapter 3.

Koch (1981)

Koch sets out to study repetition in Arabic argumentative discourse. Repetition in Arabic, she suggests, operates on different levels: "phonological, morphological and lexical, syntactic and semantic" (Koch, 1981:179). Thus, it is repetition of form and content. This repetition yields much cohesion to Arabic texts. Apart from the linguistic effect of repetition, another rhetorical effect is achieved. Repeating the same idea over and again is a means of persuasion in Arabic argumentative discourse. Koch (1981:180) describes Arabic argumentative discourse as "highly paratactic and polysyndetic: ideas flow horizontally into one another".

Arabic discourse is also parallelistic, she suggests. Koch (1981) recognizes two types of parallelism: listing and cumulative. The first is complete and it indicates that clauses of different content have the same purpose in discourse. The second is less

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complete and it creates new items. Koch (1981:177) argues that "while listing parallelism indicates that the new item is textually and rhetorically the same as the preceding one, cumulative parallelism indicates that a new, more intense item is about to begin". She attributes repetition and parallelism in Arabic to the structure of the language and society. Parallelism and parataxis are sometimes criteria of acceptability and not grammaticality. However, these are sometimes dictated by the grammar itself.

Koch (1981) ascribes the difference between Arabic and English in terms of parallelism and parataxis to the mode of argumentation used in each language. In this respect, she identifies two types of agumentation: `presentation´ and `proof´. The first is used when the truth is clear. Thus, a speaker keeps repeating those clear truths again and again. Proof is used when there is doubt about the truth. Here, there is no reason for much repetition. Presentation is typical of oral societies, Koch (1981) argues.

Koch provides a quite insightful analysis of repetition in Arabic, but she has not examined other cohesive devices. Like Williams, (1983), she has not investigated the effect of this repetition on the processing and comprehension of text.

Other researchers have commented on some aspects of Arabic discourse without investigating cohesion in Arabic texts. The conjunctions `wa´ and `fa´ have attracted the attention of some linguists who have approached Arabic discourse (Dudley-Evans and Swales, 1980; Holes, 1983; Yorkey, 1974 among others). Dudley-Evans and Swales (1980) have noticed that Arabic has a limited number of conjunctions, namely `wa´, `fa´ and `la:kin´. But they have not

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attempted to examine the cohesive function of those conjunctions, nor have they explored their role in the processing and comprehension of text. Lexical repetition has also been the object of investigation (Shouby, 1951; Williams, 1983; Koch, 1983; Al-Jubouri, 1983 among others). However, a taxonomy of cohesion has not been attempted. Nor has its realisation in different Arabic text types been investigated.

This thesis attempts to achieve both of these aims, and in addition takes a modest step towards testing the role of cohesion in text comprehension.

In what now follows, a description of the potential resources of cohesion in Arabic is provided.

2.1 Reference in Arabic

Halliday and Hasan designate three sets of devices which are potentially capable of performing a coreferential function in discourse. These are: "personal reference (pronominals)", "demonstrative reference" and "comparative reference". Each will be discussed in turn.

2.1.1 Personal Reference

There are two major categories of pronouns in Arabic: Explicit and Implicit.[1] The first are overtly expressed entities which appear in discourse either as "Independent"[2] or "Enclitics" (Beeston, 1970:40).

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(1) Explicit and Implicit are my terms.

(2) Wright (1975) refers to "Independent" pronouns as "separate".

Independent pronouns can stand by themselves as "separate" elements. They can occur initially in the sentence as its subject, as in

(2.1)   ana: (huwa, anta) Ta:lib.

I am (he is, you are) a student.[1]

It is quite plausible that an independent pronoun follows the noun it alludes to, as in the example

(2.2)   Ahmad huwa TTa:libu lmujiddu.[2]

Ahmad (he) is the industrious student.

Independent pronouns can also occupy final positions. Here is an example

(2.3)   ra´aytuhu: ana:.

(I) saw him I.

The occurrence of `I´ in final position is similar to the English reflexive pronoun `myself´, though this is expressed in Arabic by words like `binafsi:´ or `bi9ayni:´ (with my eyes).

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(1) The underlined part is the pronoun in question.

(2) The `u´ at the end of the noun `Ta:lib´ (student) and the adjective `mujid´ (industrious) is not part of the word but rather a parsing marker (Harakat bina:´). There are two other parsing markers in Arabic, namely `a´ and `i´. These have the following variants `un´, `an´ and `in´ respectively. They indicate the `case´ of words as follows; `u,un´ = nominative, `a,an´ = substantive; `i,in´ = when a noun, an adjective or a gerund follows a preposition. Other entities may be affected by these markers, but this is beyond the scope of this study to investigate.

Enclitics, on the other hand, cannot stand by themselves as independent entities. Instead, they are always found affixed to other words. The part of speech of the word to which an enclitic is attached determines its function. For instance, if an enclitic is attached to a verb, it is either the agent or the object of the verb.[1] For example,

(2.4)   ra´ay<u>na</u> rrajula. `Agent´

We saw the man.

ra´a:<u>ha</u> rrajulu. `Object´

The man saw her

An enclitic acts as an amplifier if it is connected with a substantive, as in the example,

(2.5)   qara´a kita:<u>bah</u>

He read his book

But, at the end of a preposition, an enclitic is considered part of the phrase, as in;

(2.6)   laHiqtu bi<u>hi:</u>

I caught up with him

The second category, Implicit pronouns, are not verbally exhibited in the discourse (Mubarak 1978). Rather, they are implied in the verb. The verb inflects to show gender distinctions by having a morpheme that helps listeners/readers locate the adequate referent.

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(1) Beeston does not mention the function of an enclitic as `agent´

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Therefore, a native speaker of Arabic can intuitively recognize any implied pronoun and its antecedent. He can, for example, distinguish `kataba´ (he wrote) from `katabat´ (she wrote) by means of the `t´ marker (ta:´u tta´ni:t = feminine marker). There are other markers that perform similar functions, but it is well beyond the scope of this study to provide a detailed description of these. After all, this study is not meant to offer a grammar of Arabic.

There are many striking differences between English and Arabic in their use of pronouns. Arabic, for example, does not have the category of `possessive pronouns´ (mine, his, yours, etc.). Instead, possession is indicated in Arabic either by a `possessive determiner´ eg. `Kita:bi:´ (my book) or by a pronoun which is part of a prepositional phrase, eg. `lahu´ (for him).

Moreover, while only the third person singular (he, she) shows gender distinctions in English, all the second and the third singular and plural pronouns exhibit this distinction in Arabic. In addition, as for number, Arabic pronouns distinguish `dual´ from singular and plural, eg. `dahaba:´ (they, (two) went) vs `dahaba´ (he went) and dahabu:´ (they (more than two) went).

Finally, Arabic has no equivalent for the third person `non-human´ pronoun `it´. Instead, `huwa´ (he) and `hiya´ (she) are used to refer to masculine and feminine human and non-human entities respectively.

The Arabic Explicit pronouns are spelt out in the following table which is based on Beeston (1970:40). The only deviations are, however, assigning semantic roles to the different entities and using the terms `human´ and `non-human´ instead of Beeston´s `person´ and `non-person´ respectively. The term `addressee(s)´ is also used

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instead of his `person(s) addressed'.

	Speaker(s)	Addressee(s)	Other Entities human non-human
Singular	ana:,ni:,i:	masc. anta, -ka fem. anti, -ki	masc.huwa,-hu fem.hiya, ha:
Plural	naHnu,-na:	masc.antum,-kum fem.antunna,-kunna	masc.hum,-hum fem.hunna,-hunna
Dual		antuma:, kuma:	huma:, huma:

Table 1: Arabic Personal Pronouns

As far as the cohesive role played by personal reference in Arabic is concerned, it is typically anaphoric. Beeston (1970) suggests such a function when he remarks that `a pronoun always refers to a previously mentioned overt entity' (ibid:41). Despite this rather broad generalization, Beeston recognizes the `non-specific' reference of the third person plural `they' when used to refer to `people in general' as in `they (ie. people) say it will rain tomorrow'. In addition, the third person singular pronoun can allude to `some fact or idea that has been mentioned', as in `he isn't coming today, and it is a great pity' (ibid:41).

Although Beeston does not use the terms `anaphoric' and `cataphoric', yet he recognises such reference. He recognises, for example, the cataphoric function that can be brought into play by the use of the same pronoun `to foreshadow any entity term occurring later in the sentence, as in `it's a great pity that he isn't coming today'' (ibid:41).

However, like Arabic linguists, Beeston has not looked into

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the cohesive function of pronouns across sentence boundaries. Despite the fact that Beeston's generalisation concerning the anaphoric function of Arabic pronouns does not adequately indicate whether the `previously mentioned overt entity' resides in a preceding clause or sentence, it, nevertheless, holds true of third person reference. The following example displays such an anaphoric function.

(2.7)   ja:´a <u>rrajul</u>. inna<u>hu:</u> ya´ti: mubakkiran da:´iman.[1]

The man has come. He always comes early.

The third person can also function cataphorically pointing to a forward portion of the text, albeit infrequently. Here is an example;

(2.8)   qa:baltuhu: fi lmaHaTTa. Iam yakini <u>rrajulu</u> ya9rifu TTari:q.

I met him at the station. The man didn´t know the way.

First and second person pronouns are essentially exophoric except in quoted speech, as in;

(2.9)   qa:la ali li <u>aHmad</u> "<u>anta</u> rajulun Tayyib".

Ali said to Ahmad, "You are a kind man".

Exophoric and `extended' reference which transcends the text boundary is investigated here. Our pivotal concern will be to highlight instances of endophoric and exophoric reference which

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(1) The underlined parts are the pronoun and its co-referent. The `hu:' (he) in the second sentence is the pronoun, and `rajul' (man) in the first sentence is its antecedent.

contribute to the cohesion of text.

Arabic implicit pronouns can also perform a cohesive function by making the listener/reader retrieve their antecedents somewhere in the text. Again, the relevant information may lie in a preceding or following portion of the text. In other words, implicit pronouns can function endophorically, ie. anaphorically and cataphorically. Moreover, they can occur exophorically, especially when their antecedents lie in the context of situation. The following examples explicate such functions.

(2.10)   dahaba lwaladu ila dduka:n. laqadi <u>shtara:</u> ba9Da IHalwa:
         (Anaphoric)
         The boy went to the shop. He brought some candy.

(2.11)   ja:´a <u>yarkuDu</u> musri9an.   Kana lwaladu xa:´ifan.
         (Cataphoric)
         He came running fast. The boy was scared.

(2.12)   (pointing to someone) <u>sayaDribu</u> bi lHa:´iT.   (Exophoric)
         He´ll hit the wall.

Each of the underlined verbs in the above examples has in it an implicit pronoun that refers the listener/reader to its referent in the textual or contextual environment.

Although Arabic pronouns have the potentiality for functioning endophorically and exophorically, they are principally anaphoric in written discourse. Exophoric reference is, on the other hand, a property of spoken discourse. For example, pointing to a passer-by one interlocutor may say;

(2.13)   innani: a9rifuh.

         I know him.

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Cataphoric reference is the least frequent, except sporadically in narrative texts where the referent is deliberately delayed to motivate a sense of suspense.

Unlike their English counterparts, Arabic pronouns cannot be doubly anaphoric, that is by reference and by ellipsis. It has been stated earlier that the category of `possessive pronouns´, which is capable of such a double cohesive function, is absent from the class of Arabic pronouns. As a result, the occurrence of the pronoun alongside the noun it modifies is entailed, as in the example;

(2.14)   hal yumkinuka an tajida barna:mijan li ma:ry.   <u>barnami-</u>
         <u>juha:</u> qad fuqid (laqad fuqida barna:mijuhaa).

         Can you find Mary a programme; hers has got lost. (From
         Halliday and Hasan 1976:55)

What enhances the amount of personal reference in Arabic is that its linguistic system allows the occurrence of various kinds of pronouns in one sentence. Here is an example.

(2.15)   faqad za:raha: marratan qabla ha:dihi lmarra li-yas9a:
         Hatta: la: tanqulahu lwaza:ratu mina lmadrasati
         l´ilza:miyyati llati: huwa mudarrisun fi:ha.

         (N5, Appendix B)

         He visited it (Cairo) once before this time so that the
         ministry shouldn´t transfer him from the compulsory
         school in which he worked as a teacher.

While only three pronouns (two enclitics; `ha:´ and `hu´ and one independent pronoun; `huwa´) are underlined, two more implicit pronouns (one in `za:ra´ (visited) and another in `yas9a:´ (try)) occur. Consequently, five cohesive markers are manifest in this text. This example demonstrates the intrinsic linguistic potential Arabic

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has for accumulating all types of personal reference in one chunk.

2.1.2 Demonstrative Reference in Arabic

Beeston (1970) classifies Arabic demonstratives in terms of proximity into two sets corresponding to the English `near´ and `far´ from the speaker categorised by H & H (1976). The following table displays Arabic demonstratives.

		Near	Far
Sing.	Masc.	ha:da:,	da:lika
	Fem.	ha:dihi,	tilka
Plur.	Masc. & Fem.	ha:´ula:´i	ula:´ika
Dual.	Masc.	ha:da:ni (ha:dayni),	da:nika (daynika)
	Fem.	ha:ta:ni (ha:tayni),	ta:nika (ta:ynika)

Table 2: Arabic demonstratives[1]

The English temporal demonstratives `now´ and `then´ are not recognised as such in Arabic. However, their cohesive function will be pointed out later in this section.

Some of the demonstratives displayed in the above table may assume other forms but only the commonest ones are included here.

There are major distinctions between demonstratives in both languages. For examples, Arabic demonstratives show gender distinctions. While `this´ and `that´ are used in English to refer to

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(1) Table 2 is based on Beeston´s (1970:42). The nearer item is mentioned first in the table. Whereas Beeston recognizes three sets of demonstratives (ie. near, medium, and far), only `near´ and `far´ are listed here.

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masculine and feminine entities, Arabic employs two different demonstratives to fulfil this role (see table 2). Furthermore, a specific category is used to refer to two entities (dual).

As for the behaviour of demonstratives in discourse. Beeston (1970:42) suggests that they `resemble .... pronouns in being allusive, and requiring a context to make the allusion understandable`. By context, Beeston means `co-text´ rather than the context of situation. That is because he also recognises their `generalised´ reference when they refer to some `fact or idea that has been mentioned, and not to an overt entity´ (p.42).

Like their English counterparts, Arabic demonstratives are typically anaphoric. They point back in the text, as in the following example.

(2.16)   yu:jadu kita:bun 9ala rraf. da:lika lkita:bu li:.

There is a book on the shelf. That book is mine.

As for the cataphoric reference of demonstratives, this is restricted to `this´ in English. `That´ is, on the other hand, always anaphoric (Halliday and Hasan 1976:68). Similarly cataphoric reference is typical of `ha:da:´ (this) in Arabic, whereas `da:lika´ (that) is essentially anaphoric as in the above example. The following example is an instance of cataphoric reference.

(2.17)   yajibu an yaltazima kullun minna: biha:da:.

Each one of us should abide by this: (followed by what should be abided by).

Although this function is plausible, a listener/reader expects `hada´ (this) to refer back in the text, that is to perform an anaphoric function.

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However, this cataphoric function of 'ha:da:' (this) is only plausible in such a context. This is also true of the English 'this'.

Beeston (1970:43) argues that the Arabic demonstrative 'd:lika' (that) can refer to 'an entity already known to the hearer' as in 'That is false'. In fact, 'that' in this context maintains an exophoric relation which is cohesive.

Demonstrative reference in Arabic can be doubly anaphoric, that is by reference and by ellipsis. Here is an example;

(2.18)   yu:jadu Kita:bun 9ala TTa:wila. da:lika li:.
          There is a book on the table. That's mine.

In English, the cohesive function of 'these' and 'those' corresponds to that of 'this' and 'that' respectively. In other words, while 'these' can function anaphorically and cataphorically, 'those' is always anaphoric. This is not the case in Arabic, that is 'ha:ula:'i' (these) and 'ula:'ika' (those) are typically anaphoric. For example, in 2.17 above 'ha:dihi' (these) cannot replace 'ha:da' (this) because it requires a noun to modify such as 'ha:dihi tta9li:ma:t' (these instructions). The other plural demonstrative, 'ha:'ula:'i' (these), cannot be used in that context. The following examples demonstrate how 'ha:'ula:'i' (these) and 'ula:'ika' (those) behave in discourse.

(2.19)   yadhabu l'awla:du ila lmadrasati mubakiri:n.
          ha:'ula:'i awla:dun mujtahidu:n. (Anaphoric)
          The boys go to school early. These boys are industrious.

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(2.20)   Ka:na lfara:9inatu aqwiya:'
         ula:'ika rija:lun 9iZa:m.   (Anaphoric)
         The Pharaohs were powerful. Those men were great.

(2.21)   liman <u>ha:dihi</u> (tilka) lkutub. ha:<u>d</u>ihi: (tilka) li:
         (Anaphoric by reference and ellipsis)
         Whose are these (those) books? These (those) are mine?

Thus, the plural demonstratives are essentially anaphoric. Like their

singular counterparts, they can be doubly anaphoric as in 2.21.

The dual demonstratives are also primarily anaphoric, as in

the example;

(2.22)   ja:'a lwalada:n. <u>ha:dani</u> lwalada:ni laTi:fa:n.
         The two boys have come. These (two) boys are nice.

The noun `walada:n´ (boys) can be omitted, and hence the dual pronoun

is doubly anaphoric as in 2.21.

All the previous pronouns can perform an exophoric function

indicating an entity in the context of situation as in;

(2.23a)   ha:<u>d</u>a: yawmun laTi:f.
          This is a nice day.

(2.23b)   (pointing to some pictures)
          ha:<u>d</u>ihi: Suwarun jami:la
          These are beautiful pictures.

(2.23c)   (two boys pass by)
          ha:<u>d</u>a:ni walada:ni musha:giba:n
          These (two) boys are naughty.

The Arabic demonstrative adverbs `hunna:´ (here) and

`huna:lika´ (there) can maintain anaphoric relation when they refer to

an entity mentioned previously in the text, as in the following

example;

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(2.24)   `innani: fi lkara:j. sa´antaZiruka <u>huna:</u>.
           I´m in the garage. I´ll wait you here.

(2.25)   sayataqa:balu   lfari:qaani fi lista:d.   sa´ara:ka
           <u>huna:ka</u> ´i<u>d</u>an

           The two teams will meet in the stadium.   I´ll see you
           there, then.

These demonstratives can indicate exophoric reference as
well, as in

(2.26)   ta9a:la <u>huna:</u>! qif <u>huna:k</u>!
           Come here! Stand there!

Despite the fact that the temporal demonstratives `now´ and
`then´ are not treated as demonstratives in Arabic but rather as
adverbs of time, they correspond to their English counterparts in
their textual function. They can be anaphoric, as in the example;

(2.27)   laqad habaTati TTa:´ira.   <u>´al´a:n</u> yumkinuna ttanaffusa
           biHurriyya.

           The plane touched down.   Now we can breathe freely.
           (slightly adapted from Halliday and Hasan 1976:75).

(2.28)   Ka:na ya9ba<u>t</u>u bikulli shay´in wahwa Sagi:r.   lam yakun
           ya9rifu qi:<u>m</u>ata l´ashya:´i 9inda<u>´idin</u>.

           He was careless about everything when he was young. He
           didn´t know the value of things then.

However, the anaphoric reference of these temporal entities
occurs in quite restricted contexts in both languages.   Moreoever,
this anaphoric reference may be conflated with the conjunctive
function of `now´ and `then´.

The last demonstrative according to Halliday and Hasan´s
taxonomy is the definite article. `´al´ (the) occurs in contexts that

English does not tolerate. For example, it can modify not only nouns but adjectives and gerunds as well. These three linguistic entities are spelt out in the following example;

(2.29)   la: targabu lbintu ljami:latu fi ldaha:bi ila lmasraH.
          The beautiful girl doesn't feel like going to the threatre.

In this example, ``al´ (the) appears with the nouns `bint´ (girl) and `masraH´ (theatre), the adjective `jami:la´ (beautiful) and the gerund `daha:b´ (going). Despite this broad application of `al´ (the), only the instances of this article with nouns that refer to entities mentioned in the text or situation that are considered cohesive here. Its occurrence with adjectives and gerunds is, on the other hand, confined to the boundary of the single clause. Thus it is not cohesive.

As far as the textual function of `al´ (the) is concerned, it can occur anaphorically, as in the example;

(2.30)   ja:´a rajulun ila lmaHaTTa. istaqalla lrajula awwala qiTa:r. (1)
          A man came to the station. The man took the first train.

`al´ (the) can also perform an exophoric relation which is cohesive. However, this is possible when the referent is present in the situation as in this example;

(2.31)   dahaba ila lmadrasa.
          He went to the school.

_____

(1) `al´ (the) should be assimilated in `r´ (rrajulu) but it is written for ease of reference.

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Here, there is a specific school in the interlocutors' minds. It can also be exophoric if the entity can be identified on 'extralinguistic grounds' (Halliday and Hasan, 1976:71). In this case, it can modify entities which have only one member in their class as in 'alqamar' (the moon); or it can occur with entities that are representative of their class as in 'almar'a' (the woman) in;

(2.32)   almar'atu aktaru taHammulan mina rrajul.
          The woman can bear more than the man can.

Such exophoric reference is labelled, 'Homophoric' by Halliday and Hasan (1976:71).

The linguistic system of Arabic allows the occurrence of the definite article together with a demonstrative, as in the following example;

(2.33)   innaha: sayya:ratun jami:la.   uri:du an ashtari:
          ha:dihi lsayya:ra.
          It's a beautiful car. I want to buy this (the) car.

Thus, Arabic has the potentiality for enhancing the number of cohesive devices in discourse. Such density is not plausible in English.

2.1.3 Comparative Reference in Arabic

Halliday and Hasan recognise two types of comparative reference: "general" and "particular". The first denotes "likeness" or "unlikeness" of objects. Consequently, two things may be "the same", "similar" or "different". This type of comparison is expressed by a set of adjectives and adverbs which Halliday and Hasan (1976:77) term "adjectives of comparison" and "adverbs of comparison" respectively.

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Particular comparative reference, on the other hand, means comparison in terms of "quantity" and "quality". Therefore, one object must be "bigger" or "smaller", "better" or "worse" than another. Particular comparison is embodied through a class of "ordinary adjectives and adverbs of some comparative form" (ibid:77).

The only type of comparison in Arabic conforms to Halliday and Hasan's particular comparative reference. This is realised by a form that can be derived from any dynamic verb. The comparative form should rhyme with the word `af´al´, eg. `afDal´ (better), `akbar´ (bigger), etc. This type is typically followed by `min´ (than). This is an example;

(2.34)　　Kari:m adka: min 9aliyy.
　　　　　Kareem is cleverer than Ali.

This type does not display gender or number distinction. In fact, Arabic has another type of comparison which corresponds to the English superlative degree, but this is excluded from Halliday and Hasan's taxonomy. It will not be tackled here either.

On the other hand, general comparative reference as dealt with by Halliday and Hasan does not exist in Arabic. In fact, Arabic does not have a definite set of adjectives and adverbs that are capable of expressing this form of comparison. Nevertheless, Arabic has the resources that can accommodate such a type. For example, all the adjectives and adverbs that show `identity´ of objects can be realized in Arabic by the words `nafs´ and `muTa:biq´ (same); those used for `similarity´ can be expressed as `mitl´ and `musha:bih´ (such, similar); whereas the ones which indicate `difference´ have the Arabic equivalent `a:xar´ and `muxtalif´ (other, different). Some of

the English adverbs have one-word equivalent in Arabic, eg. `bittama:tul´ (identically), while some have a phrase as an equivalent, eg. `bitari:qatin muma:tila´ (likewise) (Ba9alabki, 1972).

Although those Arabic words or phrases are not considered as expressions of comparison, the occurrence of any of them in a context similar to its English counterpart will be counted as a cohesive device.

The meaning of an instance of comparison can be retrieved either from a previous or a succeeding portion of text. Thus, comparative reference items can function either anaphorically or cataphorically. Here are examples of this;

> (2.35a)   la: uri:du ha:dihi ssayya:ra. abHatu 9an wa:Hidatin akbar. (Anaphoric).
> I don´t want this car. I´m looking for a bigger one.

> (2.35b)   `assayya:ratu l´uxra: muna:sibah. la:kin ha:dihi sayya:ratu Sagi:ra. (Cataphoric)
> The other car is suitable. This car is small.

Comparative reference can also occur exophorically, as in;

> (2.36)   (someone has got a letter)
> kuntu atawaqqa9u risa:latan muxtalifa.
> I´ve been expecting a different letter.

It seems that almost all the above examples which indicate the cohesive function of the different entities involved are instances of intersentential cohesion. However, any pair of sentences can be collapsed into one compound or complex sentence, hence providing an instance of intra-sentential cohesion. In other words, what has been said so far holds true on both levels of analysis, ie. intra- and inter-sentential cohesion. An example will be sufficient to

illustrate this;

(2.37)   la: uri:du ha:dihi ssayya:ra, li´annaha: Sagi:ra.
          I don´t want this car because it´s small.

This is an instance of personal reference `ha:´ (it) which has to be interpreted in the light of its coreferent (the car) which lies in the previous clause. Thus a cohesive anaphoric relation obtains intra-sententially.

2.2 Substitution and Ellipsis in Arabic

In fact, the literature of Arabic linguistics is completely void of any treatment of substitution and ellipsis in the Hallidayan sense. There is what is called in Arabic `albadal´ (substitution), but this refers to the relationships obtaining among the constituent elements of the single clause or sentence. Abdul-Latif (1982) also spells out the cases in which ellipsis can occur in the sentence. Still substitution and ellipsis have not been investigated as potential cohesive devices at the inter-sentential level. In other words, the role these two notions play in the creation of cohesive texts has not been scrutinised. This is principally due to the much restricted unit of linguistic analysis, the sentence.

2.2.1 Substitution

2.2.1.1 Nominal Substitution

Despite the fact that substitution and ellipsis have not been treated as textual factors, this does not rule out their existence. Arabic has the resources that accommodate them. For example, the English nominal substitute `one´ has the Arabic

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equivalent `wa:Hid´ which can occur in somehow similar contexts.   The
following   example   demonstrates   how   this   substitute   functions   in
Arabic.

(2.38)   Ha:ḏa: sa:ndwish gayr Ta:zij.a9Tini: <u>wa:Hidan</u> a:xar.
           This sandwich is not fresh. Get me another one.

Here, `wa:Hid´  (one)  substitutes for `sandwich´ in the
sentence, hence creating an anaphoric cohesive relation which links
the two sentences in one text. The defining elements accompanying the
presupposed item (not fresh) are also repudiated by `a:xar´ (another).
Thus,   the Arabic word `wa:Hid´ (one) has performed a function similar
to that performed by its English counterpart.

The   variant   substitute `ones´ is   completely   absent   from
Arabic.   Instead,   the   whole   nominal   group   has   to   be   repeated.
Therefore, in

(2.39)   These examples are wrong. Give some new ones.

`ones´ has no equivalent in Arabic because `one´ cannot be pluralised.
Therefore,   the only plausible way for conveying the meaning of `Give
some new ones´ in Arabic would be;

(2.40)   a9Ti ba9Da l´amṯilati Ijadi:da
           Give some new examples.

The   example   displays   how repetition of the whole nominal   group   is
imperative.

Example   2.38   above   shows the only context in   which   the
nominal   substitute `wa:Hid´ can occur in Arabic.   But this   cohesive
function   should not be conflated with the other structural   functions

of `one´. In order for such conflation to be avoided, examples of the structural functions will be given. According to Halliday and Hasan `one´ can function as a "personal pronoun", "cardinal numeral", "indefinite article" and "pro-noun". These are spelt out in 2.41.

. (2.41a) Personal reference

la: ya9rifu lwa:Hidu minna: mata: sayamu:t.

One never knows when he´ll die.

(2.41b) Cardinal numeral

inTalaga 9ashra, wala:kin 9a:da wa:Hid

Ten set out, but only one came back.

(2.41c) Indefinite article

uri:du finja:nan mana lqahwa; idan uskub linafsika wa:Hidan

I´d like a cup of coffee. The pour yourself one.

(2.41d) Pronoun

ida: ka:na wa:Hidan mitla ha:da: muna:siban li´an yaHkum, takallam.

If such a one be fit to govern, speak.[1]

The last example resembles the usage of `one´ as a general noun. In C, it is equally likely for an Arabic native speaker to repeat `finja:n´ (cup) rather than using `one´. Actually, this is also applicable to the instances where `wa:Hid´ (one) is used as a cohesive device. Repetition of the same entity is always equally plausible.

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(1) All the English examples are taken from Halliday and Hasan, pp.98-102.

The English nominal substitute `same´ does not occur as such in Arabic. As stated earlier, the word `nafs´ which means `same´ can be used as a comparative reference item. Therefore, for the English example;

(2.42)   I´d like a hamburger. I´ll have the same.

the following is the only likely equivalent in Arabic:

uri:du nafsa shshay´.

I´ll have the same thing.

The word `shay´´ (thing) has substituted `hamburger´ and hence `nafs´ (same) is an instance of comparative reference, and not a nominal substitute.

2.2.1.2 Verbal Substitution

Verbal substitution which is not dealt with in Arabic in the Hallidayan sense is much more restricted. The occurrence of the verbal substitute `do´ is only possible in yes/no answers as in the example;

(2.44)   hal katabta ddars? na9am, laqad fa9alt.
          Have you written the lesson? Yes, I have done.

And here, repeating the same verb `katabt´ (written) is equally likely.

But while the verbal substitute `do´ is quite adequate in certain contexts in English, it is not in Arabic. The following instance is, for example, impossible in Arabic.

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(2.44)   Have they removed the furniture?   They have done the
           desks, but that's all. (1)

The lexical verb, `remove´ must be repeated in Arabic.

        Like the nominal substitute `one´,  `do´ has other
structural functions that should not be confused with its cohesive
function. Halliday and Hasan categorize these structural functions as
"lexical verb:, "general verb", "verbal operator" and "pro-verb". The
function that can occur in Arabic will be illustrated below so that
confusion does not arise.

    (2.45a)   General Verb

           rubbama: yaf9alu ha:da ddawa:´u l´a9a:ji:ba ma9ah.
           This medicine might do wonders for him.

    (2.45b)   Pro-verb

           ma:da: ka:nat taf9al? lam takun taf9al ayya shay´.
           What was she doing? she wasn´t doing anything.

        The categories "lexical verb" and "verbal operator" do not
exist in Arabic.   In fact, the verb `yaf´al´ (do) is not used to form
questions in Arabic.

2.2.1.3 Clausal Substitution

        As for clausal substitution, the Arabic demonstrative
`da:lik´ (so) can be used to convey the same meaning as the English
clausal substitute `so´.  What determines which  function `da:lik´
(that, so) is meant to perform is the context.   The following is an
instance of clausal substitution;

_____

(1) This example is from Halliday and Hasan, p.14.

(2.46)   a9taqidu annahu: sayanjaHu ha:ḏihi lmarra. a:malu
         ḏa:lik.
         I think he'll pass this time. I hope so.

The only other plausible environments for clausal
substitution in Arabic are in such expressions: `aẓunnu ḏa:lik´ (I
believe so), and `yaf9ál ḏa:lik´ (do so). The examples show this;

(2.47)   tab9an ta9rifu TTari:q? aẓunnu ḏa:lik.
         Of course you know the way? I believe so.

         hal aT9amta TTifl? aHaduhum fa9ala ḏa:lik.
         Have you fed the baby? Someone did so.

The negative clausal substitution is even much more
restricted in Arabic. This is only possible in expressions like:
`rubbama: la:´ (perhaps not), `bitta´ki:d la:´ (certainly not), as in
the example;

(2.48)   hal tusa:9iduhu law kunta maka:ni?

         rubbama: la: (bitta´kidd la:)
         Would you help him if you were me?

         Perhaps not (certainly not)

But a straight equivalent of the truncated expression `I hope not´
does not exist in Arabic.

The above examples demonstrate the anaphoric function of
these substitution elements. In fact, this is the only function since
they should substitute for items mentioned previously in the text.

I should like to reiterate that the previous instances are
not treated as substitution elements in Arabic. The primary concern
here is to highlight the resources this language has to mark the major
cohesive functions designated by Halliday and Hasan. However, as

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stated earlier, Arabic native speakers normally opt for repeating the same entity when a substitution element can be used. This also holds true of ellipsis which will be discussed below.

2.2.2 Ellipsis

Like substitution, the notion of ellipsis has not been treated by Arab linguists across sentence boundaries. Cantarino (1974) discusses ellipsis in nominal sentences. He argues that "those members which are already mentioned in the sentence are easily understood from context are omitted." One of his examples is:

(2.49)   ayna ummaka yaa fu´a:d? mari:Da fi lbayt.
         Where is your mother Fuad?(1) He said: `ill at home´.

This is not an instance of nominal ellipsis as we shall see in the course of this section.

2.2.2.1 Nominal Ellipsis

To ascertain whether or not Arabic has the potentiality for such a relation, recourse will again be made to Halliday and Hasan´s examples. According to them `a nominal group having Deictic, Numerative, Epithet or Classifier as Head is always elliptical´. But "if it contains a partitive Qualifier, it is not elliptical unless the partitive Qualifier is itself elliptical" (p.149).

When the head of a nominal group is an "epithet" it may be elliptical in Arabic as in the example.

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(1) Faud is an Arabic name for a male person.

> (2.50)   man yadu:mu zamanan aTwal, alquDba:nu lmaHniyya ami
>   lquDba:nu lmustaqi:ma? almustaqi:ma la: tankasiru
>   bisuhu:la.
>
>   Which last longer, the curved rods or the straight
>   rods? - The straight are less likely to break.

The epithet `almustaqi:mah´ (straight) in the second sentence is elliptical. The noun `rods´ is ellipted.

It should be noted that the ellipted item precedes the eleptical element (ie. diectic, numerative, epithet and classifier) in Arabic. It is quite the opposite in English.

If the head is a "numerative" ellipsis can take place. Here is an example;

> (2.51)   arba9at maHa:ra:t uxra: tabi9athum, wa arba9atun uxra:.
>   Four other oysters followed them, and yet another four.

The second occurrence of `arba9a´ (four) is the elliptical numerative. The noun `oyster´ is elided.

The noun cannot be deleted after a deictic in Arabic. The typical English instance in 2.52 does not occur in Arabic.

> (2.52)   They haven´t got my usual morning paper. Can I borrow
>   yours? (1)

The ellipted noun `paper´ must be repeated in the question.

The classifier `is very rarely left to function as Head´ (ibid:153). Thus this category is quite restricted in English. However, corresponding adjective can occur in certain contexts in Arabic. For example;

> (2.53)   ha:dihi: rabTaTu 19unuqi lHari:riyyati llati: laday.
>   am annaka tufaDDilu lquTniyya?
>
>   These are the silk ties I´ve got. Or would you like the
>   cotton?

---

(1) The English examples in 49, 50 and 51 are taken from Halliday and Hasan, pp.148-151.

Here the noun `rabTa´ (tie) is deleted from the question. On the other hand, `one´ in the following instance does not have the same function in both languages.

(2.54)   ha:dihi: rabTa:Tu l9unuqi lHari:riyyati llati: laday astaTi:9u an uqriDaka wa:Hida in aHbabt.

These are the silk ties I´ve got. I can lend you one if you like.

While `one´ in the English example is elliptical (it presupposes `one silk tie´) it is an instance of nominal substitution in Arabic. If `rabTa´ (tie), which is supposed to be elided, is used in the second sentence, the meaning will be completely different. It will mean `I can lend you one and only one tie´. Therefore it is not elliptical in Arabic, because it cannot be followed by `rabTa Hari:riyya´ (a silk tie).

Some types of English ellipsis do not occur in Arabic. For example, Arabic does not have an equivalent for;

(2.55)   I hope no bones are broken? - None to speak of.

Instead, the nominal substitute has to be employed in Arabic. The result is `wala: wa:Hida´ (not any one). Repeating the noun `bone´ is even more likely in Arabic.

2.2.2.2 Verbal Ellipsis

Verbal ellipsis is more restricted in Arabic. Direct equivalents of certain English elliptical instances do not exist in this language. For instance, the following type does not occur in Arabic.

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(2.56)   Have you done the homework? Yes, I have.

An Arabic speaker would tend to either use the verbal substitute as in;

(2.57)   na9am, laqad <u>fa9alt</u>.
          Yes, I have done;

or repeat a whole clause as in;

(2.58)   na9am; laqad 9amaltuh (9amaltu lwa:jib).
          Yes, I have done it. (I have done the homework)

This is due to the fact that the verb `have´ does not occur as an auxiliary in Arabic.

Nevertheless, verbal ellipsis is plausible in certain contexts in Arabic, as in the following example;

(2.59)   ma:<u>da</u>: kunta taktub? - addars.
          What have you been writing? - The lesson.

It is more likely to repeat `aktub addars´ (write the lesson) rather than using ellipsis in this context.

Moreoever, `operator ellipsis´ is not feasible in Arabic since it does not have this category. Consequently, the following instance is not possible in Arabic.

(2.60)   Is John going to come? He might. He was to, but he
          may not. He should, if he wants his name to be
          considered.

          (From Halliday and Hasan, p.170)

Here, the lexical verb `come´ should be used in Arabic. The above example would, then, read as follows in Arabic;

(2.61)   hal saya'ti: John?   rubbama:. Ka:na saya'ti:, la:kin
          rubbuma: la: (ya'ti:).   yajibu an ya'ti: ida: ka:na
          yuri:du an yu9tabara smuh.

          Is John going to come?   Maybe.   He was to come, ` but
          maybe not (he may not). He should come if he wants his
          name to be considered.

          Similarly, "lexical verbal ellipsis" does not occur in

Arabic. Accordingly, the following structure which is adequate in

English has no equivalent in Arabic.

(2.62)   Has he sold his collection yet?   - He has some of the
          paintings.

          (From Halliday and Hasan, p.172)

In Arabic, repeating the lexical verb `ba:9a´ (sold) is mandatory.

2.2.2.3 Clausal Ellipsis
          Clausal ellipsis is only plausible in yes/no answers in

Arabic. For example;

(2.63)   hal katabta ddars? - na9am.
          have you written the lesson? - Yes.

`na9am´ (yes)  presupposes the clause `I have written the lesson´.

Clausal ellipsis assumes two forms in English: "modal" and

"prepositional".   The following example demonstrates which of ´these

occurs in Arabic.

(2.64a)   ma:da ka:na TTa:libu sayaf9al? - yaktubi ddars.
          What was the student going to do? - write the lesson.

(2.64b)   man ka:na sayaktubu ddars? - aTTa:lib
          Who was going to write the lesson? - the student.

In `a´ the modal element (the subject and the operator) is deleted,

hence an instance of "modal ellipsis" maintains. But "prepositional ellipsis" which demands omitting the `complement´, the `adjunct´ and the `lexical verb´ is quite unacceptable in Arabic. Therefore, `b´ `aTTa:libu ka:n´ (the student was) is inappropriate in Arabic.

Consequently, the only plausible environment for verbal and clausal ellipsis in Arabic is yes/no and WH-questions. Yet it does not even occur in this environment as freely as it does in English. For example, `yes it has´ as a response to `has the plane landed?´ is not possible in Arabic. It is more likely to respond to that question in Arabic as either `na9am (yes) or `na9am laqad habaTat´ (yes it has landed).

To recapitulate, substitution and ellipsis apparently occur in quite restricted contexts in Arabic, and repeating the entity in question is even more likely. However, when they occur, they always maintain an anaphoric relation. Their occurrence is more typical of spoken discourse in both languages. The figures which will be spelt out in Chapter Three verify this conclusion.

2.3 Conjunction in Arabic

Most, if not all, linguists refer to a set of particles as being capable of connecting single words, phrases or clauses. However, inter-sentential linkage which those conjunctions effect between independent sentences has not been explored. Moreoever, there is a lack of consensus as to which particles can function as connectives. The following table exhibits a great deal of incongruity which stems from the four classifications involved.

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Nasr (1967)		Abdul-Latif (1982)
conjunction syllables	conjunction words	Haruuf `al´aTf (particles of union)
wa (and) (1) fa (and+)	tumma (then) aw (or) la: (not) bal (but) la:kin (but)	wa, fa, tumma, Hatta: (until, so that) aw, am (or) bal, la, :la:kin

Wright (1975)		Thatcher (1942)	
inseparable conjunctions	separable conjunctions	inseparable conjunctions	separable conjunctions
wa fa li (imperative)	ida: (when since), am amma: (as for) `an (that, so, in order that), in, inna (that) aw, tumma, Hatta:, 9indamma:, kay (so that) lamma: (after when), law (if) ma: (as long as), mata: (when)	wa, fa li (so that)	id (when, since) ida: (when if), in (if, whether) illa: (if not), (either) amma:, an (anna aw, baynama: (while) tumma, Hatta:, kay, la:kin, lamma:, law, ma:, mata:, mud (mundu) (since)

Table 3: Arabic Conjunctions(2)

(1) The plus (+) sign means that the particle `fa´ can mean other things besides `and´. This will be explained in the course of this section.
(2) The meaning of each particle is given once.

The four classifications shown in table 3 can be divided into two major groups: the Arab linguists´ group (Nasr 1967; Abdul-Latif 1982) and the Western linguists´ group (Wright 1975; Thatcher 1942). Still the classifications belonging to the first group

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manifest discrepancies as regards the terms used to refer to the different sets. Furthermore, the conjunction `Hatta´ (till, so that) is not classified as such by Nasr. The second group, on the other hand, displays more consistency regarding the terms used (separable vs inseparable). In addition, although Thatcher's list subsumes more conjunctions the linguists of this group recognize more conjunctions than are identified by the other linguists.

The discrepancies demonstrated by those lists give rise to two types of indeterminacy. The first pertains to the lack of consensus among linguists as to what is to be classified as conjunctions. Next, as is the case in English, some conjunctions seem to assume more than one relation. There is also some disagreement as to what relation can be embodied by which conjunction.

Abdul-Latif (1982:261-4) designates some of the relations certain particles can perform. These are as follows:

1. Adition: wa

2. Sequence: fa, ṯumma

3. Sequence and Grading: fa

4. Purpose: Hatta:

5. Alternative: aw

6. Specification and Equation: am

7. Negation: la:kin (not preceded by `wa´)

8. Partial Contrast: la:

9. Complete Contrast: bal (this can be either positive or negative)

Although Abdul-Latif (1982) stresses the significance of the context rather than the meaning of the particle itself, which is

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partly similar to the idea of the underlying semantic relation that relates clauses rather than the conjunction itself (Brown and Yule 1983), he does not show how these conjunctions behave across independent sentence boundaries. His investigation does not go beyond the confines of complex sentences.

Despite the fact that the conjunctions shown in table 3 more or less represent the Arabic conjunctive system, it seems desirable to broaden the classification so that it can accommodate most of Halliday and Hasan's conjunctions. The suggested taxonomy considers conjunctions with a view to their function in text irrespective of what labels they are given. Some might be adverbs and most of them are prepositional phrases. What actually matters here is what relation a certain `expression´ is meant to effect.

In the following table, the Arabic equivalents of some of the English connectives will be given. These are mapped onto Halliday and Hasan's detailed table (pp.242-3). Our main reference for providing the most appopriate meanings of those connectives is the widely used English-Arabic dictionary `Al-Mawrid´.

Additive	Adversative
wa (and); wa´ayDan (and also); wala: (nor, and not); wa´illa: (or else); 9ala:watan 9ala: da:lik (furthermore, in addition, besides); badalan min da:lik (alternatively); bilmuna:-saba (by the way); ayy anna (that is); bima9na: a:xar (in other words); 9ala: sabi:li lmita:l (for instance); min na:Hiyatin ta:niya (on the other hand); filmuqa:bil (in contrast); fawqa da:lik, tumma (then).	ma9a da:lik (yet, though, nevertheless); la:kin (but); 9ala: ayyati Ha:l (however; anyhow); birragmi min da:lik (despite) this); filwa:qi9 (in fact, actually, as a matter of fact); fi: nafsilwaqt (at the same time); badalan min (instead); bil´aHra: (rather) 9ala l9aks (on the contrary); 9ala l´aqall (at least) 9ala: ayyati Ha:l (in any case); fi: ayyi l´aHwa:l (in either case) bi:ayyati Tari:qatin ka:nat (whichever way it is); mahma: yakuni l´amr (however it is).

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Causal	Temporal
lida:lik (so, therefore, consequently); idan (hence); bisababi da:lik (because of this, on account of this); liha:da ssabab (for this reason); nati:jatan lida:lik (as a result of this, in consequence); liha:da lgaraD (for this purpose); a:xidan bi9ayni l´i9tiba:r (with this in mind); bisabab, li´anna (for, because); 9ala: haida l´sas:s (on this basis); liha:dihi lga:ya (to this end); idan (then); fi: tilka lHa:la (in that case); fi: mitli ha:da ZZarf (in such an event); taHta ha:dihi ZZuru:f (under the circumstances); wa´illa (otherwise); taHta Zuru:fin uxra: (under other circumstances); biha:da lxuSu:S (ashsha´n) (in this respect); 9ada: da:lik (aside from this).	9inda´idun (just then); tumma, ba9da da:lik (next, after that); fi: nafsi lwaqt (at the same time); sa:biqan, a:nifan (previously); gabla da:lik (before that); axi:ran (finally, at last); awwalan, axi:ran 9alayhi (thereupon) the end); fi iHa:l (at once); 9ala: da:lik (after a time); fi lmarrati tta:liya (next time); fi: muna:sabatin uxra: (on another occason); fi lyawmi tta:li: (next day); ba9da sa:9a (an hour later); fi: guDu:ni da:lik (meanwhile); Hatta: da:lika lHi:n (until then); fi: ha:dihi llaHZa (at this moment); liga:yati l´a:n (up to now; hitherto); huna: (here); mina l´a:n faSa:9idan (from now on, henceforward); bixtiSa:r (in short, briefly); 9ari:ban, 9a:jilan (soon); ba9da qali:l (after a time).

Continuative

al´a:n (now); Tab9an (of course); hasanan (well); 9ala: ayyati Ha:l (anyhow); bitta´ki:d (surely); 9ala l9umu:m (after all).

Table 4: Arabic Conjunctions equivalent to Halliday and Hasan´s (1976)

This list is not by any means exhaustive. Some Arabic conjunctions have synonyms other than those given in the table. Only the commonest terms have been included here. Table 4 also shows that sometimes a one-word English conjunction has a phrase as its equivalent in Arabic, eg. `furthermore = 9ala:watan 9ala: da:lik´. Some Arabic conjunctions perform more functions than some of their English counterparts do, eg. `then´ can be an additive in Arabic, a function that does not exist in English.

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Table 4 also indicates how the same conjunction can assume various forms, eg. `then´ = `ṯumma´, `iḏan´ and `9inda´iḏin´, albeit the different function performed by each. Finally, some Arabic conjunctions can accommodate more than one English equivalent, eg. `liḏalik´ = `so´, `hence´ and `therefore´.

The presence of any conjunction does not necessarily entail that it creates the same relation as that conveyed by its English counterpart. It is the goal of a grammar to probe such potentiality which is beyond the scope of the present study. The pivotal concern here is to bring to light the way conjunctions behave in discourse. If any of them relates two clauses or sentences by some kind of relation, it will be considered cohesive.

A major distinction between English and Arabic in this concern is that English makes use of a variety of conjunctions. It is the logical relationship between a pair of sentences that dictates which connective to be employed. In contrast, Arabic uses a relatively small number of connectives, mainly, `wa´, `fa´, and `la:kin´. The great frequency of these does not preclude other conjunctions from occurring, albeit sporadically.

A brief resume of the way in which some Arabic conjunctions behave in discourse will be given below.

In fact, `wa´ is the most frequent of all conjunctions in Arabic. Almost all linguists who approached Arabic have been struck by its great frequency. Williams (1982:119) noticed that `wa´ is used not only as a coordinator but also as a subordinator´. Yorkey (1974) remarks that teachers at the American University of Beirut refer to `the wa-wa method of writing´ because it is profusely used by Arab students. He refers this to the tendency of Arabic towards using

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coordination as a favoured structural device. Dudley-Evans and Swales (1980) also observed the redundancy of `wa´ in Arabic. They noticed, among other things, the lengthy sentences of Arabic. Actually, this is another factor which enhances the over-abundance of `wa´. Holes (1983), too, maintains that the English punctuation system is particularly problematic for Arab students. Despite the introduction of the comma and the full-stop, many Arab writers still tend to `pile clause upon clause, separating them only by `wa´ or `fa´. `Wa´ can mark temporal sequence, simultaneous action, semantic contrast and semantic and temporal sequence, logical sequence, purpose, result or concession´ (p.234). Holes also suggests that `wa´ is often used to signal clause or sentence boundaries. For example, in the following example of Taha Hussein´s text, `wa´ recurs five times.

(2.65)   wala:kina   shshahra maDa:, wa raja9a l´zhariyyu   ila
         lqa:hira wa Zalla Sa:Hibuna: Haytu huwa kama: huwa, lam
         yusa:fir ila l´azhar, wa lam yattaxidi l9immata, wa lam
         yadxul fi: jubbatin aw qufTa:n. (1)

         (Nl, Appendix B)

         And but the month elapsed, and the Azhari returned to
         Cairo, and our friend remained in the same place and
         manner, he didn´t travel to Cairo, and he didn´t wear
         the turban, and he neither put on the `jubba´ nor the
         `quaftan´.

---

(1) The punctuation marks are kept intact. `Jubba´ and `qufTan´ are types of the uniform of Al Azhar people.

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First of all, this example is typical of the frequency of co-ordinate clauses which are piled loosely in Arabic. Such a structural device enhances the frequency of `wa´ in text. Moreoever, the occurrence of `wa´ with the adversative `but´ is typical of Arabic. In fact, `wa´ appears with most other conjunction. In this case, it is the other conjunction that links incoming and ongoing discourse rather than `wa´. `And´ does occur with other conjunctions in English (eg. and also), but it cannot occur with `but´, since the latter sometimes contrasts with the meaning of `and´, although in spoken colloquial English and can have an adversative meaning.

In the above example, `wa´ takes place with `but´ at the very beginning of the text. An adversative relation that is embodied by `but´ obtains here. The occurrence of `wa´ here resembles its resumptive function in spoken discourse, `but´ in the example connects two portions of discourse, the portion in which it occurs and a preceding one.

`wa´ is often meant to demarcate sentence boundaries as another comma. For this reason, not all the inter-sentential instances of `wa´ should be treated as real conjunctions. However, at the intra-sentential level, `wa´ is always cohesive because it joins clauses together in larger sentences.

Excluding the first instance of `wa´ in 2.65, the second instance is temporal (after the passing of the month, the Azhari returned to Cairo). The fourth (wa lam..) and the fifth (wa lam..) are additives. The third instance, on the other hand, conveys a causal or a logical sequence relation (as a result of the Azhari's return to Cairo, `our friend´ remained, etc.). However, this third instance of `wa´ can be dispensed with or without amputating the

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meaning.

No doubt that such a wide range of usage is also applicable to the English `and´, which has functions other than `addition´ (Quirk et al 1973). It can be causal (so, therefore, because), temporal or in spoken discourse it can be a loose connector of discourse episode.

However, this rather loose and undue frequency of `wa´ calls for attention from the discourse analyst.

Similarly, `fa´, the second most frequent conjunction occurs rather loosely, though less frequently than `wa´. `Fa´ can indicate different relations between discourse units. In the following example, it expresses a causal relation;

(2.66)   lam yakun axu:hu yuHibbu an yaHtamilah, <u>fa</u> asha:ra
          bi´an yabqa: Hay<u>tu</u> huwa sanatan uxra:.

          (N1, Appendix B)

          His brother didn´t like to put up with him, so he
          recommended that he stay where he was one more year.

`Fa´ is temporal or sequential in the following text;

(2.67)   wasur9anna ma staraddati ssayya:ratu sur9staha l´u:la:
          <u>fa</u> qtaraHa khalid an yatawaqqafu: qali:lan
          l̄iyatajawwalu: fi ZZala:m.

          (N2, Appendix B)·

          No sooner had the car retained its first speed than
          Khalid suggested that they stop to wander in the
          darkness.

Like `wa´, `fa´ can occur with other conjunctions as in the following example;

(2.68)   fa amma lkita:bu lladi: lam yakun buddun min HifZihi:
          kullih fa ulfiyyatu bnu Ma:lik.

          (N1, Appendix B)

          As for the book which he had to learn completely was
          Ulfiyyatu buu Ma:lik.

`Fa` in this example resembles the occurrence of `wa` with `but` in
2.65.   Here it is the conjunction `amma:` (as for) which relates this
chunk with the preceding one.   `Fa` conveys a resumptive function
here.

          `La:kin` (but) takes on another from in Arabic `bal`.
`bal` can indicate an additive relation as in the example;

(2.69)   al`a:n, faqaT, 9arafa mansha`a da:lika shsu9u:ri
          bilirtiya:H, innahu: yanfatiHu ama:ma 9aynayhi bikulli
          ttisa:9ihi wa Safa:`ih, bal innahu: hadama bishaklin
          ra:`i9 kulla sudu:di lka`a:ba.

          (N3, Appendix B)

          Only now has he realized the source of that feeling of
          relief, it is disclosing under his very eyes with great
          serenity and opennes, it has also (even) destroyed
          every barrier of boredom.

In contrast, `bal` in the following text is adversative;

(2.70)   laysa li`anna ummahu: tatasha:`amu mina lkalima:ti
          lmashTu:ba, bal li`annahu: ka:na la: yuri:du da:lik.

          (N3, Appendix B)

          Not only because his mother didn't like cross words,
          but because he didn't want that either.

Many conjunctions can take place in the same text in Arabic as in the
example;

(2.71)   wa la:kinnahu: - 9ala: ayyati Ha:lla: yaHqidu 9ala:
          abi:hi ila: da:lika iHadd.

          (N3, Appendix B)

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And but he, however (anyhow), does not hate his father to that extent.

One conjunction either `but´ or `however´ is sufficient to indicate the (adversative) relation here. `la:´ is recognised by some linguists as a conjunction (see table 3), but it is a negative marker in this example.

`tumma´ is another conjunction that can appear in various contexts. It is principally a temporal conjunction (then), as in the example;

(2.72) warubbama: Zahara li awwali marra tumma xtafa: limuddatin tatara:waHu bayna shahrayni wasana.

(S2, Appendix B)

Perhaps it appeared for the first time, then it disappeared for two months or a year.

`tumma´ can also be additive, as in;

(2.73) ...an yatruka arba9ata aTfa:l, an yuTalliqaki anti bila: ayyi sabab, tumma yatazawwaja min tilka l´imra´ ati shshawha:´

(N3, Appendix B)

...to leave four children to divorce you without any reason, and (to) marry that deformed woman.

We have seen how several relations can be expressed by the same conjunction in different contexts. This is in line with Abdul-Latif´s (1982) remark concerning the effect of the context on the meaning of the conjunction. This is not unusual in English when `then´, for example can indicate causal and temporal relations in different contexts. But it is not typical of English to use such a multiplicity of conjunctions (and, but, however) in one sentence as

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Arabic does.   Nor is it acceptable in English to use a conjunction in
a context where it is not needed.

Finally, we would like to provide a few examples which
clearly display that conjunctions other than those recognised by most
linguists (see table 3) can occur in Arabic.   This may, hopefully,
reveal that Arabic does have the potential resources for indicating
the different relationships between discourse units.   Importantly,
this shows how restricted the other linguists' classifications are.
In fact, those linguists draw on the traditionally recognised
particles.

    (2.74)   <u>waha:kada</u> staqarra bihi lmTaf fi: waZifatin biddarajati
                 <u>t ta:mina</u> bi´arshi:fi waza:rati l´awqa:f.

                 (N10, Appendix B)

                 <u>And thus</u> he ended up with an 8th grade job at the
                 <u>ministry</u> of religious affairs.

    (2.75)   <u>fi lmuqa:bil</u> yukarriru lmas´u:lu:n sso:vyit anna nashra
                 Sawa:ri:xa   amri:kiyyata fi: oro:bba   saydfa9u
                 l´ittiHa:da sso:vyatti ila: nashri lmzi:di mina
                 SSawa:ri:x.

                 (NE3, Appendix B)

                 <u>In contrast</u>, the Soviet Officials reiterate that
                 deploying American missiles in Europe will make the
                 Soviet Union deploy more missiles.

    (2.76)   <u>matalan</u> <u>da:lika</u> shshalxu TTawi:lu 9ala lqadami lyumna:.

                 (N4, Appendix B)

                 <u>For example</u>, that long wound on the right foot.

    (2.77)   <u>zid 9ala: da:lik</u> annahu: yaHdu<u>t</u> ´ayDan numuwwun
                 Za:hirun fi: a9Da:´i ttana:suli <u>fayakburu</u> rraHim.

                 (S2, Appendix B))

In addition (furthermore), noticeable growth in the genital organs also takes place, so (therefore) the womb grows.

(2.78)   ha:da: faDlan 9amma: yuHdituhu: mina shshagabi ma9a lji:ra:n.

(N9, Appendix B)

This is in addition to the disturbance he causes to the neighbours.

(2.79)   wa ma9a da:lik fahwa yabdu: fi ssab9i:n.

(N10, Appendix B)

And despite this, he looks in his seventies.

The above examples represent the three text types selected for analysis in this study. This proves beyond doubt that Arabic written varieties display a variety of conjunctions. Such a variety is still limited compared with that of English.

Dudley-Evans and Swales (1980) noticed this limitedness when they remark that Arabic has equivalents of most English conjunctions which appear in translated English texts, but in `other works use is restricted to the equivalents of `and´, `so´ and `but´ (`wa´, `fa´ and `la:kin´)´ (quoted in Williams, 1982:9). This view concerning the potentiality of Arabic to accommodate most English connectors validates my previous argument (see table 4).

2.4 Lexis in Arabic

Arabic utilises a very rich reservoire of lexical items. This richness has given rise to certain characteristics. To this effect, Shouby (1951:298) observed the abundance of forms of `muba:lagah´ (exaggeration) and `tawki:d´ (assertion). These two characteristics are carried out by the repetition of pronouns and

certain words to get across their meanings or significance. These also result in the abundance of `metaphors´ and `similies´ and `long arrays of adjectives to modify the same words´ (ibid:298-9).

Another device which is brought into play as a result of the wealth of lexical items in Arabic is the play on words. This leads Shouby to believe that in Arabic thoughts are the vehicles of words and not vice versa. The great emphasis laid on the value of words is partly due to the `pleasure derived from the sounds of words and the rhythm and harmony produced by the combinations of words´ (ibid:295). The influence of this "musicality" was more apparent at the turn of the century when a literary style called `saj9´ (word rhyming) was the dominant criterion of good writing.

Thompson et al (1983) consider the stylistic devices of assertion and exaggeration as one of the potential `obstacles to good English writing´ by Arab learners. It is an inherent feature of Arabic that main points are over-asserted. Patai (1976), Hamady (1960), Suleiman (1977) and Prothro (1955) among others hold that the greater use of exaggeration and assertion relative to English extends to all language communication.

These two major characteristics of assertion and exaggeration are implemented in a variety of ways. One is lexical repetition which is a major source for the cohesion of text. The following is an example which exhibits a lot of lexical repetitive items.

(2.80)   HafiZa mina lkita:bi `ashya:´a gari:ba
         ba9Duha: <u>yusamma</u> ljawhara, wa
         ba9Duha: <u>yusamma</u> lxari:da, wa
         ba9Duha: <u>yusamma</u> rraHabiyya, wa
         ba9Duha: <u>yusamma</u> ssira:jiyya, wa
         ba9Duha: <u>yusamma</u> la:miyyata l´af9a:l.

         (Nl, Appendix B)

         He learned from the book strange things,
         <u>some</u> are <u>called</u> `´aljawhara´, and
         <u>some</u> are <u>called</u> `alxariida´, and
         <u>some</u> are <u>called</u> `alrahabiyya´, and
         <u>some</u> are <u>called</u> `´assirajiyya´, and
         <u>some</u> are <u>called</u> `laamiyyat ´al ´af9aal.

The words `ba9D´ (some) and `yusamma:´ (called) are repeated five times each. The author could have listed those names after a colon, but the musical effect they produce coupled with the parallel structures which enhance such musicality made him opt to repeat them. It seems that Arab authors are so much influenced by the musical effect of words that a certain structural pattern is imposed on their writing. Parallel coordinated structures are the device that can best convey that effect. This is partly in line with Shouby´s (1951) notion of musicality.

In an endeavour to explore the `role of repetition in Arabic argumentative discourse´, Al-Jubouri (1983:101-8) observed three levels at which repetition occurs: `the morphological level´, `the word level´ and the `chunk level´. These are some of his examples.

<u>At the Morphological Level</u>

     (2.81a)   <u>laysat</u> <u>istigla:lan</u>... wa <u>layst</u> <u>isti:la:´an</u>

               not exploitation... and not confiscation

     (2.81b)   <u>yaqtulu:ni:</u> wa la: <u>yanfa9u:ni</u>

               They kill me and they don´t do me any good.

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(2.81c)   aDDu9afa:´ ... al´aqwiya:´

the weak ... the strong

The repeated words have the same morphological endings.   However each
pair in b and c is related by antonymy, while in a they are
collocates.

At the Word Level

(2.82a)   almad:fi9u wa ssuyu:f

the guns and the swords

(2.82b)   assawa:9iqu wa DDaraba:t

the thunderbolts and the blows

(2.82c)   taDHiyatun wa badlun wafida:

scarifice and sacrifice and sacrifice

Here lexical repetition hinges on synonyms in c and collocation in a
and b.

At the Chunk Level

(2.83a)   wakam min aHza:bin Hakamat tumma Hu:kimat

Many political parties ruled and got ruled

(2.83b)   wa tawallat tumma ndatarat

and took power then perished

(2.83c)   wa rtafa9at tumma saqaTat

and rose and fell

According to Halliday and Hasan `Hakamat´ and `Hu:kimat´ in a are
repetitions of the same word. In b and c repetition is carried out by

antonyms.

Such lexical repetition is not restricted to the same paragraph. Repetition of lexical items across paragraphs is another means for assertion. This is more obvious in newspaper editorials. Here is an example from the Saudi daily `Asharq Al-Awsat´.

(2.84)   Paragraph 1

asha:ra 19a:hilu ssu9u:di...

The Saudi King indicated...

Paragraph 2

wa akkada 19a:hilyu ssu9u:di...

And the Saudi King confirmed...

Paragraph 3

laqad aSa:ba 19a:hilu ssu9u:di...

The Saudi King arrived at...

Paragraph 4

ha:da: wa qad asha:ra 19a:hilu ssu9u:di...

This and the Saudi King indicated...

Paragraph 5

tumma da9a lmalik...

Then the King called for...

Paragraph 6

wa ta:laba lmalik...

And the King asked...

Paragraph 7

waqad aSa:ba lmalik...

And the King arrived at...

(NE10, Appendix B)

This editorial is made up of ten paragraphs. In seven of which either `the Saudi King´ or just `the King´ initiates the paragraph. This is besides the profuse repetition of certain words such as: Islam, Islamic, Moslims, fanaticism, the Islamic conference etc. .

Therefore, in Arabic the same point is revisited at different stages and this brings about much lexical repetition. The entire effect of a piece of writing hinges upon such lexical density. Williams (1983) asserts that Arabic tends to favour `lexical repetition´. He holds that in Arabic `the same theme´ is repeated in `successive clauses... more frequently than English does, even when it is grammatically possible to omit it´ (ibid:126). Thus, while English favours ellipsis and precision, Arabic opts for redundancy. Williams also suggests that `greater redundancy will often lead to greater cohesion, but greater cohesion will not always lead to great redundancy´, (ibid:126).

Semantic and structural redundancy which rests on lexical repetition was also observed by Holes (1983) in almost all registers of written Arabic. He maintains that such redundancy `attracts praise, not blame´ (p.26) in the Arabic literate community.

Koch (1983) argues that `the key to the linguistic cohesion of the texts and their rhetorical effectiveness´ depends on repetition. She also observed three levels of repetition: `lexical´, `morphological´ and `syntactic´. Repetition, she maintains, is a

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persuasive device which `occurs on all levels and in a number of guises´. These are, "frequent use of lexical couplets" and "repetition of content" which is implemented by `paraphrase´. Koch argues that such repetition is intrinsic in the `lugah´ (language) which `is not a tool for communicating non-linguistic or pre-linguistic ideas´ (p.55).

Thus, most linguists who have approached Arabic are in agreement that it is a language which derives its mot obvious cohesive force from lexical repetition. This will be further elaborated in Chapter 3.

Showing that different linguists acknowledge parallelism and repetition is not the same as proving that its most obvious cohesive form derives from these.

2.5 The notion of sentence in Arabic

As a syntactic unit, a sentence in Arabic assumes two major forms: nominal and verbal. A nominal sentence consists of a subject which is normally a noun or a pronoun, and a predicate which is either a noun, a verb or a preposition with its genitive (ie. adverb) (Wright, 1975), there being no equivalent to a copula. The following examples illustrate the different forms of a nominal sentence.

- (2.85a) Zaydun Ta:libun.
           Zeid (is) a student.

- (2.85b) zaydun shar:fun.
           Zeid (is) honest.

- (2.86c) zaydun ma:ta.
           Zeid died.

- (2.85d) Zaydun fi lmasjid.
           Zeid (is) in the mosque.

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A verbal sentence is one in which the subject follows the verb or has only a verb which "includes both subject and predicate" (Wright, 1975:251). These are two examples of a verbal sentence.

(2.86a)   ma:ta zaydun
          died Zeid.

(2.86b)   ma:ta
          died (Zeid).

However, discourse is not merely a string of syntactic units which are mutually exclusive. Rather, such syntactic units are normally fused together resulting in semantically independent units which constitute larger discourse. In other words, a stretch of syntactic units are connected by coordination or subordination, the thing that yields more complex structures. These structures are, thus, governed by certain semantic and pragmatic rules and not only syntactic ones.

As a semantic unit, the sentence in English has more clear-cut boundaries than that in Arabic. At least the beginning and the end of the English sentence are demarcated by a capital letter and a period, a question mark or an exclamation mark. In Arabic, on the other hand, sentence boundaries are most often far from being definite. A similar set of punctuation marks theoretically exists in Arabic (Al-Khateeb, 1983), but in practice, punctuation is often differently applied. Holes (1983) argues that despite the introduction of the full-stop and the comma into Arabic, Arab writers still `pile up´ clauses loosely connected by `wa´ and `fa´. It was suggested in 3.3 above that those two particles, especially `wa´, are sometimes used as punctuation signals marking the beginning of sentences.

Consequently, in the near absence of a distinct punctuation convention, the determination of sentence boundaries in Arabic texts becomes one of the most problematic issues facing a discourse analyst. And since this study is primarily concerned with exploring intra- and inter-sentential relations, sentence boundaries must be clearly demarcated so that inter-sentential relations can be examined. This calls for a new definition of the Arabic sentence as a semantic unit.

Like English, Arabic has the potential for connecting syntactic units by a set of coordinating and subordinating words. The result is larger semantic chunks which are equivalent to the English compound and complex structures. Here are some examples.

(2.87a)   lam yadhab 9aliyyun ila lmadrasati li´annahu: mari:D. (Complex sentence)

Ali didn´t go to school <u>because</u> he was ill.

(2.87b)   daras 9aliyyuni ddarsa ·wa Kataba lwa:jib.

Ali studied the lesson, <u>and</u> wrote the homework. (Compound sentence).

In (a) one clause is subordinated to the other by the underlined subordinating word. In (b) each clause has the same informational status and the two clauses are, therefore, coordinated.

Accordingly, this procedure will be opted for in the Arabic texts examined here. Demarcation of semantic units (ie. sentences) will be based on the inter-relationships obtaining among their constituent syntactic units (ie. clauses). In other words, a sentence will be one which is semantically independent of preceding or following sentences. Such a sentence may consist of one or more

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syntactic units.

Consequently, the demarcation of sentences in the Arabic texts examined in this study will be based on this procedure. A string of sentences will be fused in one longer sentence depending on the type of semantic relationships among its constituent clauses. The following is an example from an Arabic narrative text. In this text, slashes are used to separate clauses while numbers demarcate sentence boundaries.

(2.87c)   taHarrakati ssayya:ra/taHmilu fi lmaq9adi l'ama:mi: rajab wa-sama:rah wa-aHmad naSr/9ala: hi:n takaddasa lba:qu:n fi lmaq9adi lxalfiyy kajasadin mufalTaHin di: xamsat ru'u:s (1). ittajahat naHwa Sha:ri9: lharami fi shibhi xala:'in mina lma:rrati wa-ssayya:ra:t (2). wa-qtaraHa rajab Tari:q saqa:ra maja:lan lirra:Ha/fala:qa qtira:Hahu StiHsa:nan/mimman 9arafa tari:q/waman lam ya9rifuh (3).

(Nl, Appendix B)

The car moved/carrying Rajab, and Samara and Ahmad Nasr in the front seat while the others were piled in the back seat as one body with five heads (1). It went to Al-Haram street in semi-emptiness of pedestrians and cars (2). And Rajab suggested Saqara road as a place for rest/so his suggestion was welcomed by those/who knew the road/and who didn't (3).

This text is, then, divided into three semantic units. The first consists of three clauses. Although the second is not explicitly connected with the first, it is implicitly so, the implication being 'and it (the car) was carrying'. Each of the first and the second clauses has equal informational value, and hence they are coordinated, albeit implicitly. The third clause, which carries inferior informational value, is subordinated to the second.

Sentence 2 is semantically independent and is, thus, set off as one sentence. Its informational import (ie. the car's

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direction) is independent of that of the preceding sentence (ie the car's load) and that of the following sentence (ie. Rajab's suggestion).

The third sentence consists of four clauses, two coordinate (though `fa´ (so) is sometimes treated as a subordinator) and two subordinate. As stated in the discussion above, coordinating or subordinating clauses rests upon the informational status of the clause.

To sum up, the definition of the Arabic sentence offered here is principally based on semantic independence. A sentence is treated as such if it is semantically independent of incoming and ongoing discourse. As shown above, such a semantic unit can consist of one clause or a string of clauses which are semantically related.

In light of the above examples, sentence boundaries in Arabic can be demarcated. The suggested procedure may be rather unconventional, (no doubt, that the present procedure is not a perfect one), but it accords with the purpose of the analysis to be carried out in the next chapters.

Without a syntactic unit which is comparable across the two languages, and which takes account of the inter-relationships and dependencies of clauses, no sensible statistical analysis can be carried out of cohesion types and their frequency in English and Arabic.

2.6 Summary

The potential resources of Arabic for textual cohesion are described under the major headings of Halliday and Hasan's (1976) taxonomy: Reference, Substitution, Ellipsis, Conjunction and Lexis.

An overview of related works on cohesion in Arabic (Williams, 1982; Koch, 1981; 1983) is first outlined. Section 2.1 focusses on co-referential relations. Pronominal co-reference is utilized slightly differently in Arabic because it has a different linguistic system than that of English. Three types of pronoun are used in Arabic; enclitics (attached or dependent), independent and implicit (contained in the verb). The frequency of this relation is expected to be higher in Arabic than in English since the linguistic system of Arabic allows the occurrence of almost all those pronouns in one clause or sentence.

Besides the demonstratives used in English, Arabic has demonstratives for `dual`. In addition, the definite article has a much wider application in Arabic. For example, it can accompany nouns, gerunds and adjectives, and it can modify a word already modified by another demonstrative. Thus, demonstrative co-reference is also expected to be more frequent in Arabic.

Comparative co-reference varies in the two languages. Whereas Arabic has the potential to express `general` and `particular` comparison, it does not have the set of comparative adjectives and adverbs that occur in English (eg. equally good). Therefore, this device may be less frequent in Arabic.

Section 2.2 discusses substitution and ellipsis. The occurrence of these two devices is quite restricted in Arabic which favours lexical repetition. Moreover, certain instances of substitution and ellipsis which can occur in English are impossible in Arabic (eg. Have you done the homework? Yes, I have.). In this case, the lexical verb (ie. done) must be repeated in Arabic. Thus, what is possible as ellipsis in English occurs as substutition in Arabic.

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Consequently, these two devices are expected to be quite scarce in the Arabic texts.

Conjunction is addressed in Section 2.3. Although Arabic can accommodate most of Halliday and Hasan's (1976) conjunctive relations, a small number of conjunctions usually occurs in Arabic, namely `wa´ (and); `fa´ (so) and `la:kin´ (but). `Wa´ and `fa´ have a wide range of meanings which makes them very frequent in Arabic discourse. These can also stand alone or occur with other conjunctions. Their occurrence is still enhanced by co-ordination and parallelism. Conjunctions are, then, expected to be more frequent in Arabic.

In section 2.4 lexis is discussed. Lexical repetition is typical of Arabic discourse. This device can occur at various levels: phoneme, morpheme, words, phrases, clauses and sentences. Arabic derives much cohesion from lexical redundancy (Williams, 1983). Therefore, this device is expected to be more frequent in Arabic.

A brief statement of the nature of the sentence is given in Section 2.5. Some exploration of the difficulty of ascertaining sentence boundaries is necessary because a comparative analysis of clause connection and sentence connection, in three text-types in the two languages, must have a comparable base. Comparative statements about the frequency of inter-clause and inter-sentence connectives cannot be made unless it can be assumed that the grammatical units involved are in fact comparable across languages.

The brief exploration of the sentence in Arabic proposes that a sentence is one which contains at least one syntactic unit which is semantically independent of contiguous sentences, and which

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will fall into the class of either nominal sentences or verbal sentences.

Further discussions of parallelism in Arabic at the level of structure above clause, and of theme is to be found in Chapters 4 and 5 respectively.

2.7 Orientation

This chapter has provided a full statement of the cohesive devices of Arabic in order to provide the reader with a linguistic description which is comparable in depth of detail to the description apparatus of Halliday and Hasan. The categories which are described and illustrated in this chapter form the basis for statistical comparison of

a) intra language variation across text types

b) cross language variation within text types

Chapter Three presents the statistical analysis of cohesion along these dimensions and assumes the validity of the categories set out in this chapter.

CHAPTER THREE

Trends in Textual Cohesion in English and Arabic

3.0 Introduction

Chapter One outlines the repertoire of devices for textual cohesion in English, and examines the theoretical status of cohesion in text processing. Chapter Two presents an analysis of cohesion in Arabic. This chapter presents an analysis of the variable realisation of cohesion both in English and Arabic in three text types: Literary Narratives, Newspaper Editorials and university undergraduate Science Texts. The aim in doing so is to examine variability in cohesion in different text types and across the two languages, English and Arabic.

A comprehensive statistical analysis of every possible type of cohesion in the three text types is well beyond the scope of this thesis. In this chapter, the categories of cohesion selected for statistical analysis are essentially the major categories of Halliday and Hasan (1976): reference, substitution, ellipsis, conjunction and lexis. Two further important cohesive devices, parallel structure and thematic patterning, which do not fall within the H & H (1976) framework, (see Chapter 1 for a critique of H & H) are presented in Chapters Four and Five respectively. All of these categories are recognised by analysts of the field, though different writers place different emphasis on each category, and of course do not necessarily interpret each category in an identical way. (See Chapter 1 for full discussion of types of cohesion).

3.0.1 Choice of texts for analysis

The choice of text types requires some comment. It was

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argued in Chapter One that the absence of an explicit theory of text taxonomy is a disadvantage for practitioners who wish to analyse differences between types of language event. However, it would hardly be practical to wait until such a taxonomy exists. Therefore, ad hoc decisions have to be made regarding the delimitation of types of text, for which there is no theoretical basis. In spite of this theoretical lacuna, it can reasonably be claimed that for the lay person, literary narrative fiction, newspaper editorials and undergraduate science texts are reasonably clearly identifiable language events. The three selected are intentionally, and markedly, different from each other.

3.0.2 Text-type and readership

In selecting the three text types (literary ficional narratives, newspaper editorials and undergraduate science texts), it was assumed that:-

1. the texts would differ in terms of information density.

2. the texts would tap very different kinds of knowledge of the world

3. the texts would attract different types of reader

4. the texts would normally be approached with different reading styles.

Thus, in addition to different linguistic differences, it was predicted that the texts would involve different knowledge bases, different reader identity and different reading styles. It was not the aim of this study to test any of these predictions in a controlled way. Rather, these are working assumptions which assisted in locating maximally different text types. The differences between the texts can be summarised as follows:

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Text Type	Reader	Knowledge	Reading Style
Literary narrative	General; non-intellectual	Human actions; mental realities	Rapid extraction of story significance
Newspaper editorial	General; `intellectual´	World affairs/ political matters	Analytical appreciation
Science texts	Specialist; trained	Technical background	learning absorbtion

Thus, the selection of the three text types for analysis was motivated by an interest in identifying three clearly identifiable kinds of written text; and the immediate goal was to show that the cohesive conventions of each text-type are distinctive.

Having established the types of text for analysis, the task was then to compare each text type across English and Arabic. This immediately raises the issue of whether textual event-types are in fact comparable across languages. In comparing Arabic and English science texts, it is apparent that the "facts" presented belong to a single "world" body of scientific knowledge. While there is probably no such thing as universal scientific knowledge, in any absolute sense, it is nevertheless more likely that `universal truth´ will be found at the level of the undergraduate textbook - universal, that is in the sense of being shared by scientists operating in different socio-cultural contexts.

Turning to newspaper editorials, the likelihood that Arabic and English editors share the same world knowledge, and the same perceptions about the political world of which they write, must be very remote. In the case of literary narrative, the non-comparability of the socio-cultural worlds depicted in English and Arabic fiction

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respectively becomes even more apparent.

The cross-language comparability of the texts examined
shows best fit, then, in the case of science texts, and shows worst
fit in the case of literary narrative.

However, the validity of the cross-language comparison does
not rest on the strict equivalence of the categories and concepts of
knowledge expressed in the text, but in the comparability of textual
event in the Hymes (1972) sense. The validity of the contrastive
study of cohesion undertaken rests on the comparability of English
editorials with Arabic editorials; of English literary narrative with
Arabic literary narrative; and of English introductory science with
Arabic introductory science, as textual event-types.

3.1   The database

3.1.1   Sources

Literary fictional narratives

Twentieth century writers were selected for both Arabic and
English, to ensure comparability of era. For English, the following
authors were selected: Graham Green, James Joyce, D.H. Lawrence,
Virginia Wolf, Fitzgerald, Drabble, Huxley, Moorehead, Naipaul and
Foster. For Arabic, the following authors were selected: Taha
Hussein, Najeeb Mahfouz, Abas M. Al-Agad, Tawfeeq Al-Hakeem, Yousif
Idrees, Al-Tayab Saleh, Mahamond Taymour, Rushdi Saleh, Mustafa
Mahmoud and Ghassan Kanafani. Long dialogues occurring in literary
narrative texts were excluded from the database,[1] to ensure
comparability of content in terms of textual event-type. The
justification for this exclusion is that dialogues are likely to to be

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(1) A short dialogue occurs in an Arabic text (N2, Appendix B)

less comparable, across languages, than essays of straight narrative. The culture-specific norms of conversation are likely to be further apart from those for straight narrative, when English and Arabic are compared.

Newspaper Editorials

Editorials from the Observer, the New York Times, the Guardian, Financial Times, Sunday Telegraph, Herald Tribune and the Washington Post were selected as the database for English. For Arabic, the database was taken from the following newspapers: Al-Nahaar, Al-Anwaar, Al-Watan, Al-Seyasah, Al-Riyadh and Akhbaar Al-Youm. These include Egyptian, Kuwaiti, Saudi and Lebanese newspapers.

The English and Arabic editorials are not claimed to be comparable in the strict sense of the word in terms of content, since the concerns of the readership of each are inevitably different. However, the audience aimed at is broadly comparable, in that educated professionals and intelligentsia form the readership of English and Arabic editorials.

Science Texts

With the aim of ensuring comparability of content, general science texts originally written in English and Arabic, and aimed at university undergraduate students were selected. The science text samples represent a diverse collection in terms of subject matter: biology, transistor application, principles of computing, electrical engineering, surgery, landfill technology, drugs, health standards, manufacturing technology, biotechnology, petro-chemical industry and irrigation applied to English.[(10]

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(1) The Arabic scientific texts address different topics.

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3.1.2 Size of the corpus

In all, ten samples of each text-type for each language were investigated, making a corpus of twenty literary fictional narratives (10 English, 10 Arabic); twenty newspaper editorials (10 English, 10 Arabic); and twenty science texts (10 English, 10 Arabic).

3.1.3 The analytical unit

Two major points need to be made, prior to the presentation of trends in cohesive patterning.

First, a statistical analysis of cohesion in Arabic and English cannot proceed without defining its unit of analysis. The sentence in Arabic is a problematic concept, and the reasons for this are fully discussed in Chapter Two, Section 2.5. The clause, however, is not a problematic unit in Arabic (see Section 2.5) where it was proposed that a satisfactory working definition of the sentence can be arrived at by applying a syntactic unit which can account for the two types of sentence in Arabic (ie. nominal and verbal). However, how two or more syntactic units (ie. clauses) are contained in a more complex sentence is accounted for in semantic terms (see 2.5).

The decision to delimit the sentence independently from any punctuation marking is absolutely necessary, given the random use of punctuation in written Arabic, if an account of intra- and inter-sentential cohesion is to be presented.

It is emphasised that the type and frequency of intra- and inter-sentential ties in Arabic can only be estimated if a working definition of the sentence is assumed. It is for this reason that the framework for defining `the sentence´ in Arabic was covered in Chapter

By electing to apply a syntactic criterion for sentence definition in Arabic, sentence boundaries can be, to a great extent, clearly determined in the Arabic texts. The sentence as a unit of language is not unproblematic in English as well. Some linguists define it in syntactic terms, some in semantic terms, and some opt for punctuation as a delimiting system. However, there is a difference between linguists' definitions of `the sentence´ and how the sentence appears to operate in the creation of text. It is at least possible that the creation of `the sentence´ is governed by the kind of semantic principle which Arabic appears to require, namely that a fundamental underlying semantic unit is a completely meaningful unit independent of other contiguous sentences.

It is well beyond the scope of the present work to resolve the issue of the nature of the sentence for English, and indeed for Arabic. The primary interest was in a working definition, on the basis of which some statistical analysis of major cohesive devices in the two language could be carried out.

A second major point to be made is that, given the limitations of a study such as this, only some of the cohesive resources of the two languages could be examined. For the statistically based analysis this study elects to focus on only five major categories of cohesive devices described in the literature: Reference, Substitution, Ellipsis, Connectives, Lexical Repetition and Parallelism. The cross-language statistical comparison is based on these categories.

However, parallelism and thematisation which are important textual devices are treated in Chapters 4 and 5 respectively. The

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first is treated quantitatively and qualitatively whereas the second is treated only qualitatively.

With these two preliminary points in mind, the results of the statistical analysis of the three text types in English and Arabic are presented below.

3.1.4 Grammatical versus lexical density

In order for the statistical analysis of lexical density to be maximally adequate, both the grammatical density and the lexical density in each text were worked out on the basis of a frequency count of all the vocabulary items in each text. Stubbs' (1986) technique was adopted here because it can be handled manually. Stubbs's formula for determining `Lexical Density' in spoken discourse can be summed up as follows:

If the total number of words in the text = T,

and the number of lexical words = L,

Then

LD = 100L/T

(Stubbs, 1986:33)

Before applying this formula, a clear-cut distinction between lexical words and grammatical words must be made. Lexical or `content' words, Stubbs suggests, comprise: Noun, Adjective, Adverb and Main Verb; grammatical or `function' words comprise: Auxiliary Verb, Modal Verb, Pronoun, Preposition, Determiner and Conjunction.

Accordingly, lexical and grammatical density in the English and Arabic texts was explored: 300 words in each text were counted. A few more words were sometimes added so that a clause or sentence

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became complete. The English texts posed no serious problems, since words in English are orthographically distinct. In Arabic, on the other hand, where one graphological unit can comprise two or three words such as `biTab9iha:´ (with her manner) spacing between graphical strings does not define words. A still more serious problem is which words are to be classified as lexical and which as grammatical. Following Stubbs´ example, lexical words are those mentioned above, and all other words are grammatical.

3.2 Results of the Analysis

Lexical density

The frequency of lexical words and grammatical words and lexical density in the texts examined here are shown in the following table. In this table A stands for Arabic and E stands for English.

	Total No of words		Grammatical words		Lexical words		Lexical Density	
	A	E	A	E	A	E	A	E
Narratives	3074	3069	1626	1394	1448	1675	47.10%	54.58%
Editorials	3068	3048	1581	1187	1487	1861	48.47%	61%
Science Texts	3044	3074	1567	1216	1477	1858	48.52%	60.44%

Table 5: Lexical and grammatical density in English and Arabic texts.

In general terms, Table 5 shows:

1) that English texts are lexically more dense than Arabic ones.
2) that the three text-types in Arabic do not differ significantly from each other in terms of lexical density.
3) that literary fictional narrative texts in English are significantly less lexically dense than science and editorial texts.

Explanatory comments now follow.

That English texts are lexically more dense than Arabic ones can be ascribed to a number of linguistic and rhetorical factors. First, Arabic comprises a greater number of grammatical particles than English. These occur quite frequently in written discourse. Among these particles the conjunctions `wa´ and `fa´ which have a wide and free application in Arabic. Second, some grammatical elements such as `al´ can modify not only nouns in Arabic but adjectives and gerunds. These lexical elements are mostly modified in Arabic written discourse. `The´ can also modify a noun that is already modified by a demonstrative. Third, Arabic allows the occurrence of many conjunctions in one clause or sentence. It also allows the occurrence of many pronouns in one clause or sentence. Fourth, parallel structure is a preferred rhetorical device in Arabic. This device increases the frequency of those particles, the definite article, connectives and pronouns. Finally, Arabic has been recognised as a highly redundant language in which lexical repetition occurs on all levels (ie. words, phrases, clauses and sentences). Such repetition also increases the number of some particles such as prepositions and demonstratives. No wonder, then, that Arabic texts are grammatically more dense, and lexically less dense, than English ones.

The previously mentioned particles, conjunctions, pronouns

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and demonstratives occur in all the varieties of Arabic written discourse. The Arabic texts examined here also tend to favour co-ordination and parallel structure. This makes the difference between those texts in terms of lexical density insignificant. But as editorials and science texts in both languages utilise far more lexical repetition, lexical density is slightly higher in Arabic editorials and science than in narratives, which is what might be expected.

This also accounts for the third finding. Narrative texts in both languages prefer grammatical cohesion which is essentially established by long chains of pronominal co-reference items. In contrast, editorials and science texts derive much of their cohesion from chains of lexical items. Thus, lexical density is significantly higher in English editorials and science texts than in narratives.

3.3 Cohesion : frequency in English and Arabic

With the aim of detecting the cohesive properties of the selected English and Arabic texts, cohesive devices were sought across clauses and sentences. The absolute number of clauses and sentences in each text type is not identical, since the size of the selected texts was determined by the number of words, as stated earlier, and not by the number of clauses or sentences.

In order to make it easy for the reader to interpret the following results, two sample text analyses, one for English and one for Arabic, are introduced first. In the following analyses, R stands for reference; C for connectives; and L for lexis. Substitution and ellipsis do not occur in the texts. From now on, slashes are used to set off clauses, and numbers appear at the end of sentences.

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(i) <u>English text</u>

They shook hands without speaking (1). She made room for
Philip and his luggage amidst the loud indignation of the
successful driver /, whom it required the combined elequence
of the station master and the station beggar to confute (2).
The silence was prolonged / until they started (3). For
three days he had been considering / what he should do / and
still more what he should say (4). He had invented a dozen
imaginary conversations /, in all of which his logic and
eloquence procured him certain victory (5).

(N1, Appendix A)

Sentence number	Cohesive item	Type	Presupposed Item
1.	They	R	Miss Abbot and Philip (preceeding text)
2.	She	R	Miss Abbot (preceeding text)
	Philip	L	(preceeding text)
	the	Rx2	Station (preceeding text)
	driver	L	Station (preceeding text)
	Station	Lx2	Station (preceeding text)
	master	L	Station (preceeding text)
3.	they	R	Philip and Miss Abbot (S.2 and preceeding text)
4.	he	Rx3	Philip (S.2)
5.	He	R	"
	him	R	"
	his	R	"
	eloquence	L	eloquence (S.2)

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Clause number	Cohesive item	Type	Presupposed Item
1.	Station	Lx2	driver (preceeding clause, S.2)
2.	until	C	(preceeding clause, S.3)
3.	he	R	he (Philip) (preceeding clause, S.4)
4.	and	C	(preceeding clause, S.4)
	he	R	(" " ")
5.	his	R	(he preceeding clause S.5)
	him	R	(" " " ")

At the inter-sentential level, 11 cohesive co-reference items and 6 cohesive lexical elements occur. Some connect contiguous sentences while some connect the text with prior discourse. Between clauses, on the other hand, 4 cohesive co-reference items, 2 cohesive lexical elements and 2 connectives take place. They link the clauses in which they lie with immediately preceding clauses.

This sample text is indicative of the higher frequency of cohesive devices <u>between</u> sentences than <u>within</u> sentences. There are also differences between clauses and sentences in terms of their cohesive properties. While more co-reference pronominal and lexical items are used to establish cohesion between sentences, some co-reference items and more connectives maintain cohesion within sentences. It is clear, of course, that while such assumptions may apply to this narrative text and similar texts in English, other text types might exhibit differences in this respect.

(2) Arabic text

lam yafuti ssulTa:nu / anna jawhartan tami:na qad saqaTat fi

lqa:hira (1). tilka jjawhara hiya bnu xuldu:n (2). Wa ka:na

barqu:q dakiyyan / biqadari ma: ka:na qa:tilan (3). Wa ka:na

min 9a:dati lmulu:ki an yuTarrizu: tiya:bahum bil´aHja:ri

lkari:ma / kama: ka:nu: yuTarrizu: maja:lisahum bil9ulama:´

(4). Wa rabaTa ssulTa:nu ra:tiban lil9a:limi jjali:l /

alladi: aSbHa l´a:n Hadi:ta lqa:hira (5).

(N8, Appendix B)

The Sultan didn´t forget / that a precious jewel had been

dropped in Cairo (1).   That jewel was Ibn Khuldoun (2). And

Barquq was clever /as he was a murderer (3).   And Kings used

to adorn their clothes with precious stones / and they also

used to decorate their councils with scholars (4).   And the

Sultan assigned a salary for the distinguished scholar / who

had become the object of conversations in Cairo (5).

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Sentence number	Cohesive item	type	Presupposed Item item
1.	the	R	the Sultan (preceeding text)
	Sultan	L	" "
	Cairo	L	" "
2.	that	R	a jewel (S.1)
	jewel	L	" "
	Ibn Khuldoun	L	Ibu Khuldoun (preceeding text)
3.	And	C	(S.2)
	Barquq	L	Barquq (preceeding text)
4.	And	C	(S.3)
	the Kings	L	Sultan (S.1)
	precious		
	stones	L	jewel (SS.1,2)
5.	And	C	(S.4)
	the	R	the Sultan (S.1)
	Sultan	L	" "
	the	R	Scholars (S.4)
	Scholar	L	" "
	Cairo	L	Cairo (S.1)

Clause number	Cohesive item	Type	Presupposed Item
1.	-	-	-
2.	he	R	Barquq (preceeding clause, S.3)
3.	and	C	(preceeding clause, S.4)
	they	R	Kings (preceeding clause, S.4)
	their	R	Clause S.4)
	decorate	L	adorn (preceeding clause, S.4)
4.	he	R	Scholar (preceeding clause, S.5)

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There are 4 cohesive co-referential items, 10 cohesive lexical elements and 3 connectives between the sentences of this text. At the intra-sentential level, 4 cohesive reference items, one connective and one cohesive lexical item are used.

Again, more co-reference pronominals and lexical items function cohesively between sentences, while co-reference items create cohesion within sentences. However, Arabic texts normally utilize more connectives within sentences, but the occurrence of two relative pronouns in this text dictates the number of connectives, typically `wa´ and `fa´, within sentences.

The above texts point to the great similarity between narrative texts in the two languages in terms of their cohesive properties.

In view of those sample analyses, the English and the Arabic texts were analysed with a view to examining the trends in textual cohesion typical of each text type and detecting cross-language differences across text types. These trends are presented below.

3.4 Differences between text types across English and Arabic

Variability in the realisation of cohesion has so far been investigated in fairly small-scale studies. Most of these studies have concerned themselves with either exploring cross-text type differences in terms of co-referential and conjunctive relations (Frawley and Smith, 1983; Smith and Frawley, 1983; Gopnik, 1972; Ellegard, 1978), or examined different relations within the same text-type (Gutwinski, 1976). However, an attempt to see how all the cohesive devices, set out in Chapter 1, Section 1.1, are utilized by

different text types has not been reported.

Not only is the scope of early studies limited to cohesion typology and exemplification, but those differences have been accounted for (if they have been accounted for at all) in terms of linguistic factors. A cognitive interpretation for global trends in cohesion has not so far been attempted, nor has cohesion been treated as an interesting feature of text-type differentiation.

In the following discussion, the scope of the analysis examines global trends in co-reference, substitution, ellipsis, conjunction and lexis in the three text types selected. Parallelism and thematisation which are not treated by H & H (1976) are discussed in Chapters 4 and 5 respectively. Interpretations for the cohesive trends can be based on linguistic and rhetorical factors, but can also, and perhaps more fruitfully, make reference to inferred cognitive processing of text. Because there is no well established tradition for the interpretation of global trends in cohesion, the interpretive remarks which are offered here must be seen as mere speculation. They are, in general, informed by accounts of processing and textual knowledge discussed in Chapter 1, and rely particularly on de Beaugrande (1980). The speculative interpretive comments in the following discussion must of course be subject to experimental validation before they can be treated as proved.

It should also be noted that a speculative interpretive account is not given for minor trends in textual cohesion across text type and language type. It is well beyond the limited scope of the following discussion to assume such a task which may prove worth taking up further by future research. Therefore, interpretative comments will be devoted here to pronominal co-reference, the additive

conjunction `and´ and lexical repetition across text type and language type. In order to point out the role of cohesion in both the organisation and processing of text some linguistic and rhetorical interpretation of those global trends in textual cohesion is given in addition to the speculative cognitive interpretation. For ease of reference, each cohesive device is discussed separately below.

3.4.1 Co-reference

The term co-reference is used here instead of reference because, following de Beaugrande (1980:144), reference refers to inter-relationships between linguistic expressions and the objects representing them in the real world, whereas co-reference concerns "the use of alternative expressions in a text for the same text-world entity."

The frequency of co-referential items in this corpus is demonstrated in the following table. In this table and the following tables in this chapter `C´ stands for the frequency of cohesive devices across clauses; `S´ for their frequency across sentences; `FN´ represents fictional narratives; `NE´ represents newspaper editorials; and `ST´ represents science texts. It is also worth noting that each figure in the following tables reprsents the frequency of the respective cohesive tie per 3,000 words, the total number of words of each text type in each language.

		Pronominal		Demonstrative		Comparative	
		C	S	C	S	C	S
FN	English	134	289	7	21	7	5
	Arabic	277	297	15	86	-	2
NE	English	52	44	8	53	1	13
	Arabic	128	58	17	121	-	3
ST	English	38	28	9	80	1	8
	Arabic	110	53	22	168	-	-

Table 6: Frequency of grammatical co-reference in English and Arabic texts

The table evidently shows that the three text types display marked differences in terms of the distribution and frequency of co-referential relations in both languages. Whereas pronominal co-reference is more dense across sentences in fictional narratives, it is relatively more frequent across clauses in editorials and science texts. However, this device occurs significantly more across clauses and sentences in fictional narratives than in editorials and science texts in both languages (level of significance p > 0.5). Although demonstrative co-reference is distributed identically in the three text types, in that it is more frequent across sentences, this device occurs significantly more in editorials and science texts than in fictional narratives in English and Arabic (level of significance p > 0.5). Comparative co-reference, on the other hand is comparatively low in the three text types, though it is relatively higher in

editorials.

These cross-text type differences are accounted for below.

3.4.1.1 Linguistic and rhetorical interpretation

Pronominal co-reference seems to play a prominant role in the organisation and structuring of fictional narratives. It can maintain the continuity of the participant and event lines which are deemed necessary for holding a fictional narrative together (Gutwinski, 1976). These two lines involve characters within the sequence of events, and hence incorporate coherence by providing the semantic continuity of the action of fictional discourse. Pronominal co-reference is also held to contribute to foregrounding and right branching in this type of text (Frawley and Smith, 1983).

Expressed mostly by third person pronouns and personal possessives, as is the case in this study and earlier studies (Gutwinski, 1976; Frawley and Smith, 1983; Ellegard, 1978; Gopnik, 1972), pronominal co-reference is an adequate device for representing characters and events in fictional narratives. It would not be painstaking for the reader to assign referents for pronouns, especially because pronouns are unlikely to be ambiguous (de Beaugrande, 1984). This has a great bearing on the processing of fictional narratives as will be seen in the next sub-section.

The frequency of pronominal co-reference in this type of discourse is further enhanced by its tendency to utilise co-ordination frequently. This is an example.

(3.1)   He had been walking all day and he was very tired (1);
         he found a dry spot and (he) sat down (2).

         (N10, Appendix A)

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Each sentence of this text consists of two co-ordinate clauses in which two instances of third person pronouns that refer to the same entity occur. The sequence of events characteristic of fiction seems to dictate this pattern which enhances the frequency of pronominals in this text type. `Walking all day´ results in getting `tired´ and this naturally leads to looking for a place (ie. a dry spot) to `sit down´. The person (ie. character) involved in such a sequence of events must be overtly indicated, otherwise an illogical consequence will be brought about since an action cannot occur without a `doer´.

On the other hand, editorials and science texts favour subordination which is needed for specifying their entities and clarifying different conceptual relations. Moreover, participant and event lines which require pronominal co-reference are either completely missing, as is the case in science, or quite short as in editorials. The type of entities involved in these two text types may be confused rather than clarified by a high frequency of pronominal co-reference. As for editorials, they are discursive by nature since they deal with various factual events. Thus, pronominal co-reference cannot be used in them as systematically as it is used in fiction. This is an example.

(3.2)   President Reagan´s speech before the United Nations
         General Assembly yesterday is a profound let-down (1).
         Mr. Mikhail Gorbachev has seized.....(2).

         (NE5, Appendix A)

Here, the themes in the two sentences are different, and hence using a pronoun as the subject of the second sentence is somehow misleading. No wonder, then, that pronouns are less frequent in

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editorials. This also applies to science texts which still require more specificity that cannot be expressed by pronominal co-reference.

The exigency of specificity and clarity of entities in editorials and science texts may explain why demonstrative co-reference is higher in them than in fiction. Demonstratives, especially the definite article which makes up the major bulk of this device here, typically occurs with lexical items which are very frequent in these two text types. Finally, comparative co-reference is relatively low in this corpus. However its comparative higher frequency in editorial may be ascribed to the occasional need for comparing the factual entities addressed in this type of discourse.

3.4.1.2 Cognitive interpretation

As pronominal co-reference is necessary for the organisation of fiction, its presence must in some way facilitate its processing and comprehension. A fictional narrative basically revolves around characters and events. Pronominal co-reference can be seen as a way of elaborating the story's contribution to the perception of character. Perception of character is carried out through actions, and the reader has to perceive these actions in order for him to perceive characters. Recurrence of pronominal co-reference keeps the identity of previous characters alive in the reader's mind. A reader intuitively expects that a chain of pronouns refer to previously stated characters or actions. That pronouns are unlikely to be ambiguous (de Beaugrande, 1984) makes a reader easily assign their adequate referents, even if these reside in far removed sentences. This, in turn, enables the reader to connect new anaphors with prior antecedents, and hence easily and rapidly process new

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information by integrating it into memory.

Pronominal co-reference can be said to have a light processing load. Being inherently empty of content and having a short form (de Beaugrande, 1980) may make them easy to process because they make the information load of fiction lighter by making a number of references to the same entity through a chain of pronouns rather than by introducing new entities in the form of lexical elements. The effect of this pattern is that a fairly large `chunk´ of text is processed before a new actor/agent is introduced via a new nominal. It is clear, then, that narrative fiction is closer to the spoken end of the spoken-written continuum, in that, as Farag (1986) has already established, long chains of pronominals are preferred in the oral versions of narratives. These chains of pronominals can therefore be seen as contributing to the semantic economy of text, a principal which de Beaugrande (1980) considers crucial to efficient processing. Clearly, there is a correlation between the requirement for semantic economy/information load, and the constraint that fictional narrative must provide entertainment, and must therefore not make excessive demands on cognitive load.

On the other hand, if those pronouns were replaced by nominal expressions, this would increase the information load. They might also come between the text and the reader by interfering with the perceived development of character and plot. That may explain the trade-off between pronominal co-reference and lexis in the three text types. Where pronominal co-reference is high, lexis is low and vice versa.

The light processing load of pronouns makes them an adequate device which meets the requirements of readership, reader

knowledge and purpose, reading style and the pedagogical objective of the text. These should have a certain bearing on the processing of text as argued in Chapter 1, Section 1.2. Lewis (1982) suggests that the purpose of the reader can affect his predictions and eventually his processing of text. Rumelhart (1984) states that readers make hypotheses throughout reading and once such hypotheses are confirmed comprehension is ensured. Andersson (1978) seems to entertain the same view in that confirmation of the reader's expectation results in efficient understanding. A reader expects chains of pronominal co-reference in a fictional narrative and he hypothesises that these refer to the same entity (ie. characters or actions), and mostly, if not always, his expectations and hypotheses come true, the thing that facilitates and expedites processing. Besides, a fictional narrative is normally written for a general non-intellectual reader who reads it rapidly to extract the significance of the story and eventually get entertained. The fact that pronominal co-reference is highly predictable makes its processing rapid and easy, the thing that contributes to the pedagogical objective of the text, that is to entertain.

Unlike fictional narrative, science texts overtly and editorials convertly have a pedagogical purpose: training the reader in concepts. The readership of the latter categories, however, is different. Editorials are meant for general intellectual readers who read them for the analytical appreciation of world affairs (ie. political and social issues). The kind of knowledge involved in an editorial requires specificity and informational density which would be ruled out by long chains of pronominal co-reference. Journalistic

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discourse has been found to have a participant and event line like fiction (Frawley and Smith, 1983) as stated above. An editorial, however, is discursive, and dense, and will require higher informational density than is permitted for narrative, and will thus prohibit lengthy chains of pronominals. An example of isolated pronominal co-reference shows · the chain-length restriction for an editorial extract.

> (3.3)   Ten years ago next week, Dr. Henry Kissinger, then at
>   the height of his powers as US Secretary of State,
>   proclaimed a bold objective: `that within a decade no
>   child will go to bed hungry´ (1). Ten years on, those ·
>   words spoken at the UN World Food Conference ring hollow
>   indeed (2).
>
> (NE8, Appendix A) ·

Only one instance of third personal possessive (ie. his) occurs in this text. The diversity of topics which is dictated by the factual entities addressed in an editorial does not leave room for the occurrence of many instances of pronominal co-reference. As mentioned above, the use of a pronominal may therefore confuse rather than clarify reference. If, for instance, `those words´ in the second sentence was replaced by the pronoun `they´, the reader would not easily know whether reference is made to `years´, `powers´ or `words´ in the first sentence. Assigning the appropriate referent will entail making bridging inferences (Clark and Haviland, 1977), which slows down processing.

Science texts are found to contain infrequent pronominal co-reference, and such co-reference as exists tends significantly to be intra-sentential. Specificity and clarity are pre-requisites of science texts, and clarity is served by lexical identification of

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entities. This lexical density seems to be more adequate than pronominal co-reference to express the technical knowledge involved in science. As in editorial, long chains of pronominal co-reference can confuse rather than clarify issues. This, in turn, renders processing more problematic.

3.4.2 Substitution and ellipsis

Table 7 shows the frequency of these two devices in this corpus.

		Substitution		Ellipsis	
		C	S	C	S
FN	English	-	1	2	-
	Arabic	2	2	3	-
NE	English	3	4	1	-
	Arabic	-	-	-	-
ST	English	-	1	-	2
	Arabic	1	-	-	-

Table 7: Frequency of substitution and ellipsis in English and Arabic texts.

The table shows that substitution and ellipsis are quite infrequent in the three text types in both languages. The scarcity of these devices in written discourse has been confirmed by other researchers (Johns, 1983; Williams, 1982; Halliday and Hasan, 1976).

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However, an explanatory reason for such scarcity of substitution and ellipsis in written discourse has not so far been reported. Some researchers, as stated in Chapter 1, Section 1.2, assume that processing ellipsis is much more problematic than processing pronouns and noun phrases (Tennant, 1981). Tennant (1981) attributes this assumption to the fact that processing ellipsis not only requires the identification of the instance of ellipsis but also stipulates assigning the appropriate antecedent. Thus, two mental operations are at work, which makes processing ellipsis more demanding. In addition, ellipsis entails contrast which further complicates its processing. But this is not necessarily true. de Beaugrande (1980) views ellipsis and substitution which he terms `pro-forms´ as contributors to the economy of text. Thus, they can be seen as a kind of trade-off between "compactness and rapid access" (ibid:158). As such, these two devices allow "enormous savings in the creation and utilization of surface structurè" (ibid:151). Therefore, substitution and ellipsis can be said to have a facilitatory effect on the processing of text provided that their occurrence is not unduly frequent and the identity of reference is not ambiguous. On the other hand, heavy ellipsis, de Beaugrande (1980:158) suggests "would demand increased effort for connecting the underlying text-world model". This may, to some extent, explain why this device is not very much favoured by written texts which demand specificity and easy and efficient connection of text-world model. Moreover, a written text must "stand on its own feet" and this is established through the referential value which must be clear from the text.

Finally, ellipsis may be deliberately used to serve a certain purpose. A writer occasionally employs ellipsis to control

the content of the text (Lewis, 1982). His assessment of the reader's knowledge sometimes makes him omit certain elements.

3.4.3 Conjunction

The frequency of conjunctive relations in this corpus is spelt out in the following table.

		Additive		Adversative		Causal		Temporal		Other	
		C	S	C	S	C	S	C	S	C	S
FN	English	40	7	14	9	7	2	14	5	14	2
	Arabic	118	56	11	9	36	10	16	9	23	5
NE	English	14	6	3	17	5	3	14	1	14	-
	Arabic	68	45	10	5	21	16	2	-	15	-
ST	English	20	3	17	7	5	2	16	3	9	2
	Arabic	56	70	4	4	32	3	5	6	11	2

Table 8: Frequency of conjunction in English and Arabic texts.

The table clearly shows that conjunction is essentially an intra-sentential cohesive device in the three text-types in both languages.

The most striking difference between the three text types lies in the frequency of additivity which is significantly more frequent in fiction than in editorial and science (level of significance $p > 0.5$). This holds true for English. In Arabic, on the other hand, this relation is significantly more frequent in

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fiction than in science. Thus, in both languages fictional narratives tend to utilise additive conjunctions very frequently. This trend is accounted for below.

3.4.3.1 <u>Linguistic and rhetorical interpretation</u>

That additivity is a major characteristic of fictional discourse has been confirmed by other researchers who examined literary fictional narratives similar to the present corpus (Gutwinski, 1976; Smith and Frawley, 1983; Cheong, 1978). Fiction is held to cohere additively (Smith and Frawley, 1983). Mostly expressed by `and´, additivity incorporates "right branching" and highlights the seriation of events in this type of discourse (ibid).

The high frequency of `and´ in fiction has been mostly attributed to the tendency of this text type to use co-ordination in preference to subordination. However, an explanatory cognitive interpretation has not been reported. This is attempted below. But before getting to grips with that interpretation, a word in passing on the other conjunctive relations seems necessary. It terms of those relations, the English text types are typically adversative, temporal and causal respectively. In Arabic, they are causal, temporal and adversative, except editorials in which adversativity is significantly higher than temporality. This suggests that adversativity is significant for this type of text. Smith and Frawley (1983) suggest that journalistic discourse essentially coheres adversatively through the contrasting conditions of the real world. Cross-language differences are dealt with in the next section.

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3.4.3.2 Cognitive interpretation

The high frequency of `and´ is an aspect of oral narrative discourse (albeit with a number of functions). The question is:why is it so frequent in oral and oral-related traditions? - and conversely, why is subordination more characteristic of science and editorial texts? In section 3.4.1, it was argued that the entertainment purpose of fictional narrative militates <u>against</u> high information density and therefore against heavy nominal usage. The same factor (entertainment value) may have some bearing on the prediction of `and´ as a connector. Since `and´ is semantically a fluid element, acquiring meaning from contextual environment, processing may be facilitated and speeded up in some way through the presence of just such element. It would be that there is a relationship between reading efficiency and textual dependency, in that elements whose exact meaning is predicted by context may have faster meaning-retrieval than elements which are more independent. It would be possible to establish experimentally whether such a principal holds true or not. If it were a valid principle, it would go same way towards why the ubiquitous `and´ appears with such frequency in literary and oral narrative. Presumably, one constraint on the construction of literary fictional narrative is that processing for story line and character portrayed must not require more mental effort than is compatible with reading.

Clearly, the relatively low frequency of `and´ in science and editorial, with the high frequency of subordination, must be linked with the need for these text types to create more specific kinds of meaning and meaning connectivity than narrative fiction. If the meanings conveyed by science and editorial are in some sense more "specific" and less open to "semantic negotiation on the basis of co-

text" than those in narrative fiction, then, again, this should be amenable to experimental validation.

So what is being suggested is _not_ that "and is easy to process" but rather that contextual dependency of meaning facilitates processing, and this principal could embrace far more in language than the element `and´. It could account for the relationship between form and function, the norm (rather than the exception) being that a very significant proportion of the lexicon is multi-functional (eg. bank, form, bed, yellow - each of· which has radically different and unrelated meanings in different contexts). Precisely those lexical elements which are commonest in _spoken_ language are those at issue. The more specialised the written language term, the more technical, the less likely it is that the precise meaning of linguistic elements will be derivable from contextual knowledge. Conversely, the meaning of linguistic elements which are common in spoken discourse can be easily derived from contextual knowledge. Their frequent use in speech renders them highly predictable. Hence, their meanings can be efficiently and rapidly processed. This is applicable to `and´ with which the reader is quite familiar. The degree of familiarity has a bearing on efficient processing. Because readers are more familiar with narrative discourse, narrative passages have been found easier to process and comprehend than expository passages (Britton and Graesser, 1983). By the same token, the reader´s familiarity with `and´ makes him easily process the relations it effects. No wonder, then, that `and´ is highly frequent in fictional narratives which are meant to be read rapidly. Such a goal requires a conjunction like `and´ which can enhance the reading style of a fictional narrative.

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3.4.4 Lexis

Two major lexical relations are investigated here: identical lexical elements which subsume repetition of same item (eg. boy-boy) and semantically related elements which include any pair of lexical items that stand to each other in any identifiable semantic relation (eg. part to whole, part to part, etc). The frequency of these two relations in the present corpus is demonstrated in Table 9 below. In this table IE stands for identical elements and SRE for semantically related elements.

	IE		SRE	
	C	S	C	S
FN English	16	132	24	109
Arabic	43	225	57	84
NE English	21	281	13	120
Arabic	49	327	38	83
ST English	32	464	11	54
Arabic	66	478	27	51

Table 9: Frequency of lexis in English and Arabic texts

Table 9 clearly shows that lexis is typically an inter-sentential cohesive device. Editorials and science texts tend to use IE significantly more than fictional narratives do (level of significance $p > 0.5$). This holds true for English. In Arabic IE is significantly more in science than in fiction, but although this

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difference is quite big between editorials and fiction, it is not significant. SRE, on the other hand, is significantly more frequent in fiction and editorial than in science in English. Again, the difference in this respect is not significant in Arabic, albeit considerable. Some tentative interpretation now follows.

3.4.4.1 Linguistic interpretation

It was argued in 3.4.1 that fictional narratives deal with characters and events to which reference can be best made by pronominal co-reference. The notion of trade-off between pronominals and lexis can explain why IE which consists of repetition of same items in this corpus is not frequent in fiction. Conversely, since pronominal co-reference is relatively low in editorials and science texts, lexical repetition is highly frequent in them. Again, it was suggested in 3.4.1 that the entities involved in editorials and science texts require much specificity and clarity so that readers can grasp the concepts in those texts properly. This aspect is elaborated on further in the next sub-section

Thus, it seems that lexical repetition plays an important role in the organisation of editorial and science texts. Their semantic continuity is established via the relatedness of lexical items throughout the text. In science, this semantic continuity is contingent on the interrelationships between exact repetitions of previous entities. In editorials, on the other hand, this semantic continuity is ensured partly through exact repetitions and partly through lexical collocates which are semantically related to the hyper topic of the editorial. This suggests that whereas science texts

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heavily appeal to the reader's text knowledge, editorials as well as fiction appeal to his text-world knowledge. This has implication for the processing of text, an issue that is addressed below.

3.4.4.2 Cognitive Interpretation

It seems that lexical repetition is sometimes inescapable. de Beaugrande (1980:137) suggests that since some concepts have only one name "the use of specially defined terms must be consistent, despite the repetitiousness entailed". This is typically so in "scientific reports" (de Beaugrande, 1980). Thus, lexical repetition is unavoidable in science and to a certain extent in editorial texts. Such lexical repetition meets with the readership, reader knowledge and purpose, reading style and pedagogical objective of those two text types. Editorials, it was suggested in 3.4.1, are written for general intellectual readers who aim at the analytical appreciation of world political and social affairs. Science texts are also meant for specialists who aim at extracting technical knowledge. In both text types, the writer, like a teacher, sets out to inform (teach) the reader and train him in concepts. This pedagogical purpose may dictate lexical repetition so that the concepts involved can be adequately processed and understood. This is an example.

(3.4)   I consider biology a natural science (1). I consider
        biotechnology an engineering science (2). In my mind,
        the finality of biology as a natural science has been,
        and is to arrive at a theory of living matter 93). The
        finality of biotechnology as an engineering science is
        to utilize living matter for producing and degrading
        large quantities of matter (4).
        (S8, Appendix A)

In order for the scientist to point out the difference between the 'finality' of both sciences, as he conceives of it, he keeps repeating

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same lexical item. It is evident that such repetition is inevitable since most of the terms (eg. biology, biotechnology, science, engineering) cannot be replaced by other forms.

No doubt this lexical repetition results in a dense information load in editorials and science texts. Therefore, their processing is expected to be much slower than that of fiction. The slow processing rate seems to be partly determined by the author who, like a teacher, releases information step by step. This is necessary here because the intake of new information must be well-paced. Therefore, the reader processes such a dense information load one step at a time rather than in large chunks as is the case in fiction.

Recurrence of lexical items also has an important bearing on the processing of editorials and science. One of the pre-requisites of efficient processing, as stated in Chapter 1, Section 1.2, is the maintainance of the semantic identity of reference in contiguous sentences (de Beaugrande, 1980; Sanford and Garrod, 1981). Recurrence of lexical items, de Beaugrande (1980:135) argues, "would entail sameness of reference", and hence impresses the current items on memory. Processing should therefore be efficient "as the point of connection in the ongoing text-world model should be obvious" (ibid:135). Thus, lexical repetition keeps the semantic identity of reference alive in the text and this facilitates connecting new anaphors with previous antecedents, which facilitates integrating new information in memory (Clark and Haviland, 1977). Repetition of same lexical items in adjacent sentences makes the memory search insigated by new anaphors short, and hence processing is speeded up. For these reasons, lexical repetition can be said to have a facilitatory effect

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on the processing of text. This assumption is empirically tested in Chapter 6.

On the other hand, SRE may be more demanding on the processor's part. The reader has to activate his pragmatic world knowledge to set up an adequate antecedent which is not explicitly realised in the text. This, in turn, slows processing down (Clark and Haviland, 1977). However, ease or difficulty of processing SRE can be determined by the relationship between anaphors and antecedents, as Sanford and Garrod (1981) suggest in Chapter 1, Section 1.2. If the two items (ie. anaphor and antecedent) are frequently used, processing new information would not be problematic. Editorials normally employ familiar elements (eg. voters, elections, referendum) and their processing would not be as demanding as imagined. However, compared with exact lexical repetition, SRE can still be slower and more demanding to process.

3.5 Differences between English and Arabic across text-type

We have seen in 3.4 that the three text types cohere similarly in English and Arabic. Fictional narratives essentially cohere via chains of pronominal co-reference whereas editorials and science texts derive much cohesion from lexical repetition. This suggests that cohesion is a <u>variable</u> phenomenon in both languages.

However, the two languages display marked differences in terms of the frequency of major cohesive devices across those text types. It seems that those differences in global trends in textual cohesion are very much dictated by language type rather than by text type. That is the three Arabic text types tend to utilise certain

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cohesive devices such as pronominal and demonstrative co-reference, additive and causal conjunctions and lexical repetition much more frequently than their English counterparts do. In other words, cross-text type differences in the frequency of those cohesive devices represent tendencies typical of each language in this respect.

Therefore, the following discussion will attempt to account for cross-language trends in textual cohesion across the three text types examined here. As in 3.4, cross-language differences are accounted for in linguistic, rhetorical and cognitive terms. Since the cognitive interpretations outlined in 3.4 equally apply to the three text types across both languages, more emphasis is laid here on the implications of the high frequency of major cohesive devices for processing Arabic texts. As in the previous section, minor cohesive trends as regards substitution, ellipsis, comparative co-reference and adversative, temporal and `other´ conjunctions are not dealt with in the following discussion.

3.5.1 Co-reference

The three Arabic text types employ pronominal co-reference across clauses and demonstrative co-reference across sentences and clauses significantly more frequently than their English counterparts (level of significance $p > 0.5$). This tendency is accounted for below.

3.5.1.1 Linguistic and rhetorical interpretation

High frequency of pronominal co-reference in Arabic argumentative discourse has been ascribed to the nature of the Arabic verb which contains an implicit pronoun (Williams, 1982). This seems to hold true for the three text types under discussion. However,

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other reasons can account for such a tendency. It was argued in chapter 2, Section 2.1 that Arabic has three types of pronoun: independent (eg. huwa = he), enclitic (attached, dependent) (eg. kita:buhu: = his book) and implicit (contained in the verb) (eg. kataba = he wrote). In addition, Arabic has special pronouns for the category `dual´ (eg. kataba: = they (two) wrote) and other markers which function like pronouns (eg. katabu: = (they wrote). The linguistic system of Arabic allows most, if not all, of those pronouns to occur in the same clause or sentence (eg. arrajulu huwa qa:da sayya:ratahu: binafsih = the man (he) drove (he) his car himself). English, on the other hand, neither has such a multiplicity of pronouns nor tolerates such a high frequency of pronominal co-reference in one clause or sentences. The example also shows that in Arabic the pronoun can occur with its co-referent (eg. arrajulu huwa = the man he) in one clause. Such occurrence is impossible in English. No wonder, then, that pronominal co-reference is significantly more in the Arabic texts.

High frequency of demonstrative co-reference in Arabic can equally be attributed to some linguistic factors. The definite article `al´ (the) has a much wider application in Arabic. It can accompany nouns, adjectives and gerunds (eg. al9ayshu fi lmuduni lkabi:rati yuˊdi SSiHHa = (the) living in (the) big (the) cities hurts (the) health). This example shows that `the´ almost always accompanies abstract nouns in Arabic. It can also occur with elements already modified by a demonstrative (tilka ssayya:ra = that (the) car). `The´ does not have such a wide application in English. And since lexical repetition, as will be shown later in this section, is

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more frequent in Arabic, it is not unusual that demonstrative co-reference is more frequent in the Arabic texts.

Frequency of co-reference is further enhanced by co-ordination and parallelism which are typical of almost all written Arabic texts. A written Arabic text normally runs as a string of parallel co-ordinate clauses in which instances of pronominal co-reference are particularly very frequently. This is an example:

(3.5)   yamraD /wa yanHal / wa yamu:t.

        (N6, Appendix B)

        He gets sick / and he paralyses / and he dies.

However, this is more typical of fictional narratives than of editorials and science texts which tend to use subordination more frequently than fictional narratives do. But, compared with their English counterparts, Arabic editorials and science texts still utilise co-ordination and parallelism more frequently, as will be shown in Chapter 4. This explains why pronominal and demonstrative co-reference is significantly more greater in these two text types om Arabic.

3.5.1.2 Cognitive interpretation

The facilitatory effect of pronominal co-reference on the processing of fictional narratives in both languages has been outlined in 3.4.1.1 above. The high frequency of this device across clauses in Arabic editorials and science texts must have a bearing on the processing of these two text types. Editorials and science texts in Arabic typically have a dense information load. Efficient processing of these two text types, therefore, calls for a certain kind of trade-off between their informational density and what de Beaugrande (1980)

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terms "rapid access" which is crucial for storing knowledge in memory. The light processing load of pronouns which, as suggested in chapter 1, Section 1.2, have a compact form and are void of an inherent meaning (de Beaugrande, 1980) makes them adequate candidates for establishing the required trade-off. Thus, density of pronouns across clauses in Arabic editorials and science texts can be seen as contributing to their semantic economy which is an important function of cohesive devices. The principle of semantic economy is also central to efficient processing (de Beaugrande, 1980). Therefore, pronominal co-reference can, to some extent, alleviate the informational density of Arabic editorials and science texts. This density may be much enhanced if full forms were frequent across clauses as they are across sentences.

In addition, high frequency of pronominal co-reference can facilitate processing new information in those two text types. Recurrence of this device can keep the semantic identity of reference alive in the reader's mind. This is again another important factor which contributes to efficient processing (de Beaugrande, 1980; Sanford and Garrod, 1981). That pronouns and their co-referents normally occur in contiguous clauses may expedite processing new information. Readers have been found to search the most immediate context for a probable antecedent (Clark and Haviland, 1977). Thus, connecting a pronominal anaphor with its antecedent which is expressed in an immediately preceding clause is easy and rapid. The proximity of anaphors and antecedents instigates a quite short memory search. This, in turn, speeds up integrating new information into memory.

In fact, processing pronouns in Arabic may be even lighter

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than that in English. As stated above, pronouns in Arabic can be implicit in the verb or attached to another element. In the former case, processing a pronoun does not add to the cognitive load on the processor's part. In the second, a pronoun is processed as part of the element to which it is attached. This light processing load can be viewed as alleviating the phonological and morphological complexity of Arabic texts. This is a speculative assumption that requires empirical investigation.

Similarly, the high frequency of demonstrative co-reference across sentences in the three Arabic text types may have a facilitatory effect on their processing. What is noteworthy about Arabic texts in this concern is that anaphors are almost always defined and they are sometimes doubly modified (ie. by `the´ and another demonstrative). This phenomenon suggests that the semantic identity of those anaphors is over-asserted. Such over-assertion may also have an important bearing on the processing of those texts in which the identity of reference may become ambiguous amidst their typical informational density if not asserted. Therefore, connecting definite anaphors with previous antecedents which normally lie in adjacent sentences should be easy and fast (Tennant, 1981). Although definiteness should not always be equated with easy processing, it activates background knowledge (de Beaugrande, 1981). This background knowledge keeps the semantic identity of reference intact in successive sentences. On the other hand, leaving those anaphors undefined may require activation of the reader's pragmatic world knowledge in order to connect incoming

anaphors with prior antecedents, especially if those anaphors and antecedents are related by collocation. Consequently, the high frequency of demonstrative co-reference to define anaphors which repeat previous antecedents can contribute to efficient processing of Arabic texts.

3.5.2 Conjunction

One striking difference between the three text types in both languages is that whereas conjunction is essentially an intra-sentential device in English, it is an intra- and inter-sentential device in Arabic. Thus, while inter-sentential relations are mostly implicit in English, in Arabic these are almost always overtly realised (Williams, 1982).

Another striking difference between the two languages concerns the frequency of additive and causal conjunctions. These two conjunctions occur significantly more across clauses and sentences in the three Arabic text types (level of significance $p > 0.5$). The only slight deviation, however, is that causality occurs almost equally between sentences in science texts in English and Arabic. Cross-language differences in terms of these two relations are discussed below.

3.5.2.1 Linguistic and rhetorical interpretation

It was suggested in Chapter 2, Section 2.3 that although Arabic has the potential to accommodate most of H & H´s (1976) conjunctions, only three conjunctions, namely, `wa´ (and), `fa´ (so) and `la:kin´ (but) predominate in Arabic written discourse (Dudley-Evans and Swales, 1980). In this corpus, `wa´ and `fa´ are the most frequent conjunctions. `la:kin´ is very low here.

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High frequency of `wa´ and `fa´ is mostly arrtibuted to the rhetorical factors of co-ordination and parallelism (Williams, 1982; Holes, 1983; Yorkey, 1974; Dudley-Evans and Swales, 1980). This is quite true as shown in 3.5 above.

`Wa´ and `fa´ are also used to connect successive mostly parallel clauses which are piled upon one another despite the introduction of some punctuation signals such as the comma and the full-stop as Holes (1983) argues. In fact, Arabic has a punctuation convention similar to that used in English (Al-Khateeb, 1983) but punctuation markers are often arbitrarily applied. Thus, the frequency of `wa´ and `fa´ in Arabic can be ascribed to the indeterminacy of sentence boundaries.

These two conjunctions can express various conjunctive relations (ie. additivity, adversativity, causality, temporality, etc.) (Holes, 1983). As suggested in 2.3, they can occur with other conjunctions (eg. wa la:kin = and but; fa amma: = and as for (and but)). `And´ can occur with other conjunctions in English (eg. and because) but not with `but´. Nor does English tolerate such a high frequency of `and´, especially across sentences. After all, sentence boundaries in English are comparatively well demarcated. In addition, English editorials and science texts favour subordination.

As for causality, Smith and Frawley (1983) suggest that this is a "high-level plot function" in fiction. Science texts, they argue, deal with postulated rather than real causes. This may explain why this relation is particularly low in the English texts.

A cognitive interpretation for the high frequency of `wa´ and `fa´ has not so far been reported. A speculative interpretation

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is attempted in what now follows.

3.5.2.2 Cognitive interpretation

As for the cognitive function of `junction´ in text, de Beaugrande (1980:159) suggests that it serves to link configurations of knowledge "between spaces or between entities within spaces". Explicit realisation of "junction" relations is not always necessary since those configurations of knowledge can be related through certain inferential strategies that people normally apply. However, explicit relations, de Beaugrande (1980) argues, can facilitate processing provided that their occurrence is not "unduly frequent". Implicit relations, on the other hand, can lower "processing ease" but they increase "processing depth".

In fact, implicit relations may be sometimes adequate when sentence boundaries are well demarcated. In this case, boundaries of knowledge configurations can be easily perceived, and hence underlying conceptual relations can be supplied by the reader. But the situation is completely different when sentence boundaries are far from being distinct, as is the case in the Arabic texts. Here, determining boundaries of knowledge configurations would be quite demanding on the processor´s part. At least, the processor´s contribution may be very heavy because he has to set off those knowledge configurations first and then he has to supply missing conceptual relations. Such a task would enhance processing difficulty of Arabic texts which are already informationally dense and phonologically and morphologically complex. Therefore, these characteristics of Arabic texts coupled with their indistinct sentence boundaries may call for overt realisation of inter-sentential relations. It has been suggested above that `wa´

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and `fa´ can operate as sentence-boundary markers. As such, these two conjunctions serve to signal spaces between configurations of knowledge among other functions. By this token, `wa´ and `fa´ can determine when one text segment starts and another ends, and hence they can contribute to efficient processing of Arabic texts.

Being informationally dense and phonologically and morphologically complex, Arabic texts require the type of conjunctions whose relations can be easily and rapidly processed. It was suggested in 3.4.3 that the fluid nature of `and´ makes it acquire meaning from the context wherein it occurs. This equally applies to `wa´ and `fa´ in Arabic. As suggested in Chapter 2, Section 2.3, these two conjunctions can be used in different contexts where they express various relations. Contextually dependent elements, as argued in 3.4.3, are highly predictable, and as such they are easy to process. For the reader who most frequently uses `wa´ and `fa´ in his speech the relations these two conjunctions effect are similarly easy to process. Thus, `wa´ and `fa´ can have a facilitatory effect on the processing of Arabic texts. Their presence would relieve the processor from retrieving underlying conceptual relations if `wa´ and `fa´ were missing. In addition, that their relations are easy to process may enable the reader to rapidly process new configurations of knowledge. This is particularly important for Arabic texts which inherently have a dense information load.

Viewed from another perspective, `wa´ and `fa´ can be said to have a simple phonological and morphological structure. That is why they are always attached to other elements whether they be other conjunctions (eg. wa la:kim = and but) or some lexical or grammatical terms (eg. wa rrajulu... = and the man...). Other conjunctions should

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always stand on their own. Thus, it follows that `wa´ and `fa´ do not add much to the phonological and morphological complexity of Arabic texts.

Finally, these two conjunctions are sometimes void of an inherent meaning. That is when they occur as sentence boundary signals or together with other conjunctions, they can be dispensed with without amputating the meaning of text. de Beaugrande (1980) demonstrated how many instances of `and´ in children's stories can be omitted without affecting the meaning of these stories. It is true that in Arabic texts, `wa´ and `fa´ always relate incoming to ongoing discourse, but in contexts like the above they can be deleted without impairing textual meaning. The point here is not whether it is more appropriate to keep `wa´ and `fa´ or dispense with them but rather their presence in such contexts does not enhance the cognitive load on the processor's part. When they accompany other conjunctions, it is the other conjunctions rather than `wa´ and `fa´ which express the respective relations. Thus, `wa´ and `fa´ have no processing load whatsoever here. This equally holds true when they occur as sentence-boundary markers. Therefore, `wa´ and `fa´ can be said to facilitate rather than enhance the information load of Arabic texts.

The above assumptions are speculative and demand further validation.

3.5.3 <u>Lexis</u>

In terms of their lexical cohesion, the three Arabic text types tend to utilize IE and SRE across clauses significantly more than their English counterparts do (level of significance $p > 0.5$). At the inter-sentential level, lexical

repetition is much more frequent in the Arabic fictional narratives and editorials, whereas these two text types employ lexical collocation relatively more frequently in English. Differences in this respect is not significant. Science texts in both languages tend to use lexical repetition very frequently.

These differences are accounted for in what follows.

3.5.3.1 Linguistic and rhetorical interpretation

The tendency of Arabic written texts to use lexical repetition very frequently has been referred to the prolific word root which can generate many derivatives (eg. 9alima - knew; 9ilm - science; 9a:lim = scientist; mu9allim = teacher, etc.) (Williams, 1982). Williams (1982, 1983) suggests that Arabic derives much cohesion from this redundant repetition. Arabic, he argues, tends to repeat themes in successive sentences even when it is grammatically possible to omit them.

Lexical repetition in Arabic has also been attributed to certain rhetorical devices such as `tawki:d´ (assertion), `muba:laga´ (exaggeration), `musicality´ and the use of long arrays of adjectives to describe the same entity (Shouby, 1951). This tendency is sometimes ascribed to the mode of argumentation stated above. Koch (1981, 1983) identifies this mode as `presentation´ according to which many points are normally repeated over and again to stress the same viewpoint. This repetition, no doubt, aims at convincing the reader of a certain view, a mode typical of Arabic editorials. For example, in one Arabic editorial, the term `dialogue´ recurs in every sentence so that the reader is convinced that `dialogue´ is much more effective than deadly weapons.

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The following example is an instance from that editorial:

(3.6)   The regime has called for dialogue (1). And the
         dialogue has been one of the opposition parties´ claims
         (2). And Syria calls for the dialogue...(3). And Saudi
         Arabia moves toward the dialogue...(4). And France
         emphasises the importance of the dialogue...(5).

         (Translated literally from the Lebanese newspaper `Al-
         Nahaar´, 21 March 1983)

Repetition of the term `dialogue´ in almost each sentence
is meant to emphasise or even over-assert the main point (ie.
dialogue) in that editorial. Such repetition is not tolerated by
English editorials whose discursive nature requires the use of diverse
lexical items to express the various affairs (ie. political and
social) of the real world. Therefore, lexical collocation is
relatively more frequent in them than in their Arabic counterparts.

Science texts in both languages pose no marked differences
in terms of lexical repetition which is, as suggested in 3.4.4, often
unavoidable in this text type (de Beaugrande, 1980).

Fictional narratives in both languages display some
difference in this respect. Whereas lexical repetition is still
relatively high in the Arabic narratives, it is very much restricted
in their English counterparts. This can be ascribed to the higher
frequency of co-ordination and parallelism in Arabic narratives, as
will be shown in Chapter 4, and to the nature of Arabic which allows
the occurrence of the referent alongside the pronoun alluding to it.

In light of the above brief discussion, it can be concluded
that lexical repetition plays a very important role in the
organisation of Arabic written discourse. This device seems to
largely contribute to the surface connectivity and semantic continuity

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of Arabic written texts which derive much cohesion from the great redundancy resulting from lexical repetition, as Williams (1982, 1983) suggests. In contrast, English written texts, except science, tend to exhibit more textual economy and precision. This is more true of English fictional narratives. English editorials, on the other hand, rely partly on lexical repetition and partly on ‚ SRE for their connectivity and ·continuity. Thus, it follows that whereas Arabic texts appeal more heavily to surface cohesion which is mostly realised by lexical repetition, their English counterparts, especially narratives and to some extent editorials appeal more to semantic coherence which is established via SRE. Although this category is relatively frequent in the Arabic fictional narratives and editorials, lexical repetition still constitutes a major cohesive property of these text types. No doubt that such lexical repetition must have a role to play in the processing of Arabic written texts. This role is explained in the next sub-section.

3.5.3.2 Cognitive interpretation

It was suggested in Chapter One, Section 1.2 that lexical anaphors (ie. noun phrases) are easy to process (Tennant, 1982). Connecting those anaphors with specific antecedents must be easy and fast. However, ease or difficulty of processing lexical anaphors is determined by three factors: clarity of the semantic relationships between anaphors and their respective antecedents, the semantic distance between anaphors and antecedents and whether antecedents are explicit or implicit in the text or situation (Sanford and · Garrod, 1981). Lexical repetition in the Arabic texts seems to establish these three factors. Firstly, anaphors normally repeat the same

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antecedents in previous sentences, as shown in the above example. Therefore, the semantic relationships between those anaphors and antecedents must be very clear. Secondly, occurrence of anaphors and antecedents in adjacent sentences facilitates and expedites their connection, which facilitates and speeds up processing new information. Thirdly, antecedents are almost always explicitly stated in the previous text. This also makes assigning antecedents for lexical anaphors quite easy. Moreover, recurrence of antecedents in immediately preceeding sentences instigates a quite short memory search, which that expedites integrating new information into memory.

de Beaugrande (1980), as suggested in Chapter One, Section 1.2, suggests that recurrence of same lexical elements keeps the semantic identity of reference alive in the reader's mind. As argued above, this factor is of particular relevance to the efficient processing of Arabic texts in which this identity of reference may become ambiguous as a result of their dense information load. Thus, lexical repetition can have a facilitatory effect on the processing of Arabic written texts.

On the other hand, SRE which requires activation of the reader's pragmatic world knowledge may be more demanding on the processor's part. This device slows down processing new information (Clark and Haviland, 1977). The nature of Arabic texts suggested above demands a device which facilitates and expedites their processing. This is best achieved by lexical repetition which, as Berman (1984) argues, renders Arabic texts transparent. Ellipsis and substitution, on the other hand, make those texts opaque, Berman (1984) states. This may account for repetition of themes in successive sentences in Arabic written discourse, although such

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successive sentences in Arabic written discourse, although such
repetition can be sometimes grammatically dispensed with (Williams,
1982, 1983).

That the English fictional narratives and editorials tend
to utilise _SRE_ more frequently than their Arabic
counterparts suggests that the reader's world knowledge is appealed to
more heavily in them. Lexical repetition in the Arabic texts points
to involving the reader's text knowledge more heavily in Arabic.

The previous speculative interpretations remain theoretical
and require empirical verification. Such a task is well beyond the
scope of this study to handle. However, a small-scale study of the
facilitatory effect of one cohesive device (ie. lexical repetition) on
the understanding of three English text types by Arab learners is
reported in Chapter 6.

3.6 Summary

This chapter has investigated the global trends in textual
cohesion in three text types in English and Arabic. The three text
types selected are fictional narratives, newspaper editorials and
introductory university science texts. Selection of these text types
was motivated by interest in investigating three easily identifiable
texts in terms of their readership, reader knowledge and purpose and
reading style. 60 texts were analysed, 20 for each text type (10 for
each language). Investigation of trends in textual cohesion has aimed
at providing evidence for the variability of the phenomenon of
cohesion in different text types. It has also attempted to shed some
light on the role of cohesion in the processing of text. In other
words, this chapter has tried to point out the descriptive and

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explanatory apparatus for cohesion as a textual phenomenon.

Different text types are shown to cohere differently. Whereas fictional narratives essentially cohere through pronominal co-reference, editorials and science texts derive much cohesion from lexical repetition. This holds true for English and Arabic. The three text types in both languages avoid heavy ellipsis and substitution.

As for the facilitatory effect of those global trends in textual cohesion on the processing of the three text types, it has been found that each text type opts for the cohesive tie which meets its readership, reader knowledge and purpose and reading style most adequately. For example, pronominal co-reference can facilitate the processing of fictional narratives by enabling the reader to perceive the characters and actions of the story. The light processing load of pronominal co-reference also enhances the reading style of a fictional narrative which is meant to be read rapidly. This in turn contributes to the entertainment goal of the text. Pronominal co-reference also plays an important role in the organisation of fiction, in that it contributes to the continuity of the participant and the event lines which hold the text together.

Lexical repetition serves similar functions in editorials and science texts. The type of concepts involved in these two text types require much specificity and clarity, which can be best carried out by lexical elements. Thus, lexical repetition can assist in the organisation of editorials and science texts by ensuring their semantic continuity. This device can similarly contribute to

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efficient processing. By keeping the semantic identity intact in contiguous sentences, lexical repetition helps readers to easily connect new anaphors with their previous antecedents, the thing that facilitates processing new information.

In terms of their conjunctive relations, fictional narratives are found to utilize the additive `and´ much more frequently than editorials and science texts. The fluid nature of `and´ which makes it express various relations enables the reader to easily process those relations.

Although in English and Arabic the distribution of those cohesive devices is almost identical across the three text types, both languages differ considerably in the frequency of those devices. Arabic texts generally tend to use pronominal and demonstrative co-reference, additive and causal conjunctions and lexical repetition much more frequently than English. On the other hand, comparative co-reference and lexical collocation are more frequent in the English texts. The high frequency of those devices in the Arabic texts is viewed as representing a kind of trade-off between the phonological and morphological complexity and information density typical of those texts and efficient processing. In such types of text, the most important prerequisite for efficient processing is the maintainance of the semantic identity of reference in successive clauses and sentences which are loosely connected. Frequency of those cohesive devices, especially pronominal and demonstrative co-reference and lexical repetition, keeps the identity of reference alive in those sentences, and clauses.

In the light of the above trends, one can conclude that cohesion is a variable phenomenon which is realised differently in

different text types. In addition, there is always a kind of trade-off between those cohesive devices, in that when pronominal co-reference is dense lexis is low and vice versa. In Arabic, this trade-off obtains within the same text type, in that pronominal co-reference is dense across clauses while lexis is dense across sentences. As for cross-language differences, it can be said that whereas English favour textual economy, Arabic opts for redundancy from which it derives much cohesion.

Finally, it should be remembered that the cognitive interpretations of global cohesive trends typical of each text type and language type are speculative, and require empirical verification.

Cohesive Function of Parallel Structure

4.0 <u>Introduction</u>

Parallel structure occurs frequently in both English and Arabic, and has been noted in political rhetoric, poetry, fiction, and biblical religious writing. The form it takes is often of a tripartite nature, as far as English is concerned. This is an example:

> (4.1)   His cheeks were aflame; his body was aglow; his limbs were trembling.
>
> Joyce `A Portrait of an Artist as a Young Man´ (See N9, Appendix A)

In this example, three clauses with the same grammatical structure follow each other in rapid succession, each involving predication of an NP representing a part of the body, and each VP being an intranstive verb of process in continuous aspect.

Parallel structure thus involves the use of particular syntactic and semantic configuration more than once, in rapid succession. The general expectation for English appears to be, as in the above example, of a tripartite nature. An example from policital rhetoric, again at the level of independent clause, shows the expectation of closure at the third occurrence.

> (4.2)   It ought to be possible to examine such links seriously. It ought to be possible to discover, for instance, whether people who have no jobs, or who are claiments, or who live in sub-standard housing, or who live in broken families...are more likely to commit particular crimes or to be the victims of particular crimes. It ought to be possible...to try to construct policies which are designed to prevent these crimes

from happening.

In this example, the three sentences start with the same clause (ie. It ought· to be possible) followed by an infinitive phrase (ie. to examine, to discover, to try to construct). Although the parallelism is broken after the infinitive phrase in the second sentence which is a rather long one, its textual effect is apparant. Koch (1981) calls incomplete parallelism such as this "cumulative parallelism" which creates new items. The creation of new items highlights the rhetorical effect of parallelism, that is "it creates new, broader classes", and by doing so "the rhetorical effect of alluding to the class gets more forceful" (ibid:178). This is a very important end for political rhetoric which aims at convincing the hearer/reader of a certain viewpoint or winning him over to one side or party.

Besides having three independent sentences, each beginning with a parallel clause, the second sentence contains two completely parallel clauses (eg. who live...who live...). Complete parallelism has been termed "listing" (Koch, 1981). It repeats equal syntactico-semantic configurations more than once. In this "listing parallelism", clauses which are assumed to have the same informational value (Koch, 1981) run in a list. It is like saying `first, second, third, next...´. Listing parallelism also shows that the things repeated belong to a certain phenomenon. In the above example, two types of people (ie. those who live in sub-standard housing, and those who live in broken families) are listed. Both types of people belong to one category (ie. those who are likely to commit crimes...etc).

The above example shows how parallelism comes to a closure

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at the third occurrence.

Arabic, on the other hand, appears to tolerate much larger strings: up to seven or eight occurrences of the semantico-syntactic structures are quite normal in political discourse. This phenomenon of long concatenated strings of parallel structure, loosely connected with `wa´ or `fa´, has already been commented on in Chapter Two Section 2.3, where sentence/clause connection is discussed. An example of just such structural parallelism in Arabic political rhetoric now follows.

> (4.3)   ayumkinu an nataja:hala anna huna:ka da:´iratan
> 9arabiyya...(1). ayumkinu an nataja:hala anna huna:ka
> qa:rratan afri:qiyya...(2). ayumkinu an nataja:hala
> anna huna:ka 9a:laman isla:miyyan...(3). falaysa
> 9aba_tan anna baladana: fi: janu:bi garbi a:sya (4).
> falaysa 9aba_tan anna baladana: yaqa9u fi: shama:li
> sharqi afri:qya (5). falaysa 9aba_tan anna lHaDa:rata
> l´isla:miyyata wa ttura:ta l´isla:miyya lladi: aga:ra
> 9alayhi lmagu:lu lladi:na iktasaHu: 9awa:Sima l´isla:mi
> lqadi:mata tara:ja9a ila: miSr wa awa: ilayha: (6).

> (Modified from Koch, 1981, pp.172-5)

> Can we ignore that there is an Arab circle? (1). Can
> we ignore that there is an African continent? (2). Can
> we ignore that there is an Islamic world? (3). For it
> is not accidental that our land is in the South-west of
> Asia (4). For it is not accidental that our land is
> located in the north-east of Africa (5). For it is not
> accidental that the Islamic civilization and the
> Islamic heritage, which the Mongols raided, who
> plundered the ancient capitals of Islam, returned to
> Egypt and sought refuge there (6).

This text can be divided into two parts. In the first part sentences 1, 2 and 3 follow each other in parallel, and in the second part sentences 4, 5 and 6 run in parallel. Complete parallelism takes place in the first set (ie. sentences 1, 2 and 3), where the same semantico-syntactic units recur in the three sentences. Each sentence consists of two clauses, a main clause (ie. the question) and a

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nominal clause. In every sentence a new noun phrase which consists of an attribute and a noun is introduced (eg. an Arab circle, an African continent, and an Islamic world); and the new elements introduced are themselves related to each other in that they are members of a semantic class: geographically defined societies.

In the second part of the text, sentences 4 and 5 represent complete parallelism whereas in 6 it is cummulative (ie. incomplete). In fact, the rest of all the above sentences which is not quoted here represents cumulative parallelism. However, the example shows the potential of Arabic political rhetoric for parallelism which can, in certain cases, accommodate a much larger number of semantico-syntactic units than that in English.

Further examples of parallelism in religious discourse, which of course has a common historical ancestry, can be seen in the following texts.

(4.4)   Quran

        wa shshamsi wa DuHa:ha: (1)
        wa lqamari ida: tala:ha: (2)
        wa nnaha:ri ida: jalla:ha: (3)
        wa llayli ida: yagsha:ha: (4)

(From Su:ra `Shams" (The Sun) No. 91, translated by Abdullah Yousuf Ali)

        By the Sun and his (glorious) splendour (1)
        By the Moon as she follows him (2)
        By the Day as it shows up (the Sun's) glory (3)
        By the Night as it conceals it (4)

Bible

3.   The voice of the Lord is upon the waters; the God of glory thundereth; the Lord is upon many waters.

4.   The voice of the Lord is powerful; the voice of the Lord is full of majesty.

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5.   The voice of the Lord breaketh the cedars; yea, the
        Lord breaketh the cedars of Lebanon.

        (From Psalm 29, Old Testament, Oxford)

In the text from Quran, every verse begins with a prepositional
phrase. Verses 2, 3 and 4 have an adverb clause of comparison. Thus,
complete syntactic units are repeated in 2, 3 and 4. In each unit,
the lexical items (ie. Sun, Moon, Day and Night) are semantically
related. This semantico-syntactic parallelism is a striking feature
of the textual unity of the text.

        Similarly, in the biblical text three sentences repeat the
same compound subject (ie. the voice of the Lord), and two have
semantically related subjects. The rest of those sentences is either
a verb of process in the continuous aspect or a transitive verb (ie.
breaketh). The first and the third sentences in 3 have a place
adjunct each, whereas the second closes with the verb. In 4, the verb
of process is followed by an adjective. In 5, an object follows the
transitive verb. Thus complete and cumulative parallelism is
displayed in the text. Repetition of the same words or semantically
related items reinforces the textual unity.

        In poetry, too, within English, structural parallelism is
clear. Here is an example.

    (4.5)   In that I loved you, love, I worshiped you.
            In that I worshiped you well, I sacrificed.
            All of most worth I bound and burnt and slew:
            Old peaceful lives; frail flowers' firm friends; and
                Christ.

            (From W. Owen's `To Eros´)

        In Owen's short poem, `In that + adverbial clause´ precedes
the main clause in both the first and the second lines. In the third

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line, three transitive verbs of action + process appear, each of them involving a violent, shameful act. The direct object of these verbs, `All of most worth´ is expanded in the last line, so that the semantic antities affected by the three violent actions are specified. The quadruple, rather than tripartite pattern, underlines the moral seriousness of the last direct object, `Christ´.

4.1 Function of parallelism

The question must be asked, `What does the use of parallel structure signify?´ To suggest that it has persuasive or aesthetic or forceful force is not a full answer because the question remains, `Why does it have such force?´ Adequate investigation of this question belongs in the field of psycholinguistics and/or social psychology, and is certainly beyond the scope of this thesis. There is one aspect of parallelism, however, which should be thoroughly integrated within the framework of the present discussion, and that is its cohesive function.

H & H´s (1976) taxonomy of cohesion excludes parallelism, yet its role in creating textual semantic unity, which is what cohesion is all about, has been commented on by many linguists (Quirk et al, 1973; Hartnett, 1981; Koch, 1981, 1983; de Beaugrande, 1980 among others).

In the processing of text, its potential is visualised as "freeing attention away from parsing surface structures, so that conceptual-relational content can receive greater concentration" (de Beaugrande, 1980;127). For readers normally tend to "re-use already apperceived structures" (ibid: 226). When people build `text-world models´, conceptual dependencies and grammatical dependencies are

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utilized in parallel. Parallel structure gives rise to making inferences: "that locations and events are approximate in space and time" (de Beaugrande, 1980:161). This happens when sentences are used in juxtaposition and the conjunctive relations between them are not explicitly stated. Parallelism of form, de Beaugrande, 1980 suggests, points to "relatedness of actions". It is also viewed as demonstrating relatedness of equal ideas (Hartnet, 1981). Thus, parallel structure not only incorporates relatedness of syntactic forms but also relatedness of conceptual semantic relations underlying those syntactic forms.

4.2 Parallelism in Arabic

The inclusion of this device in this study is of particular relevance to Arabic which derives much of its cohesion from repeated use of syntactic and/or semantic configurations that run in parallel. The heavy reliance of Arabic on parallel structure and syntactic and semantic repetitions has been recognized by many linguists (Holes, 1983; Williams, 1982, 1983; Al-Jubouri, 1983, Koch 1981, 1983; Swales and Dudley-Evans, 1980; Shouby, 1951; Kaplan, 1966, 1967; Yorky, 1974; Thompson et al, 1983; and Cowman, 1978 among others).

However, the role this device actually plays in textual cohesion in Arabic has not been thoroughly explored, although it has been mentioned in passing (Williams, 1983). Williams suggests that Arabic favours lexical repetition which results in great redundancy. This degree of redundancy which is unacceptable in English written discourse incorporates much cohesion into Arabic discourse.

The most comprehensive treatment of the role of parallel structure in Arabic is that of Koch (1981). Investigating cohesion

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and persuasion in Arabic argumentative discourse, she shows that the basic constraint on the formation of discourse is `paradigmatic patterning`. Accordingly, she identifies two types of constraint on Arabic discourse: syntactic and rhetorical. Syntactic constraint is imposed by the grammar of the language, whereas rhetorical constraint is imposed by the culture.

Koch (1981) argues that, as a language, and a discourse, Arabic is `parallelestic` and `paratactic`. Such parallelism and parataxis are sometimes consciously used by the writer. They may even, indeed, be criteria of `acceptability` rather than `grammaticality`. However, parallelistic or paratactic structure is, in certain cases, dictated by the grammar of Arabic as being "the only choice tnat the grammar allows" (p.184).

Koch (1981) ascribes the high frequency of parallelistic or paratactic structure in Arabic discourse to two main factors. One is the oral culture in which the style of Arabic argumentative discourse is deeply rooted. The other is a rhetorical reason which has to do with how `truth` is handled. Koch (1981) recognizes two types of argumentation whereby `truth` can be presented. The first is called `presentation` and this occurs when truth is already established and available. Therefore, the role of the arguer is to simply repeat the same thing again and again. The second which is called `proof` is needed when there is doubt about the truth. This calls for establishing or proving it.

Koch (1981) argues tht argumentation in Arabic is dominantly implemented by `presentation`. This mode of argumentation is typical of "hierarchical societies, where truths are not matters

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for individual decision" (p.194). Thus, argumentation in Arabic calls for making truths "present in discourse: by repeating them, paraphrasing them, doubling them, calling attention to them with external particles" (p.195). This creates what Beeston (1970:120) terms "rhythmic balance between two (occasionally three) clauses which are also marked by a careful parallelism of sentence". Such rhythmic balance and parallelism is reminiscent of a style called `saj9´ which was dominant in the 19th and early 20th centuries. This style emphasised the form of words rather than the content of discourse. Although attempts to change this mode of rhetoric were made in the middle of the 19th century, "repetition and balance, synonyms and paradigms, are essentially and authentically.....at the heart of the language, the discourse, and the rhetoric in a way which cannot be simply disposed of" (Koch, 1981:197).

As for its cohesive effect, "repetition", Koch (1981:198) argues, "creates linguistic cohesion by evoking classes of items, it creates persuasive force by creating classes, and in doing each of these things it creates language". She identifies two categories of parallelism: `listing parallelism´ and `cumulative parallelism´. The first occurs when complete syntactic patterns follow one another in parallel. It is equivalent to listing in English (ie. first... second... finally). The cohesive force of listing parallelism, is brought about by "indicating that the same level of generality is being maintained" (ibid:170). Cumulative semantic parallelism which is not as complete as listing parallelism, establishes cohesion by creating an intellectual momentum and "the parallelism and lexical echoing create a sort of momentum in the text which reflects its content" (ibid:172). Thus, parallelism is "simultaneously cohesive

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and rhetorical" (ibid:172).

Koch (1982) considers repetition to be a major `text-building strategy´. She concludes by remarking that

> "repetition and paradigmatic patterning,
> are also the keys to the dynamic process
> by which juxtaposition in the syntagma of
> discourse continually create and modify
> the extra-textual paradigms from which
> syntagma are built" (ibid:179)

This repetition, she maintains, occurs on all levels: "phonological, morphological and lexical, syntactic, and semantic" (ibid:179). In other words it is a repetition of form and content.

Clearly, parallel structure is a powerful textual device which calls for further investigation both in Arabic and in English. Investigation should take account of a variety of text-types so that the role of this device in different types of discourse can be ascertained. Koch's (1981) study was only concerned with argumentative Arabic discourse. She did not look into parallelism in other text-types. The present study endeavours to explore the cohesive role of parallel structure in the three text-types examined in this corpus.

It was argued in Chapter One that parallel structure operates on four linguistic levels: single words, phrases, clauses and sentences. Only parallel clauses and sentences are examined in the following discussion, which focuses on the cohesive function of parallel structure within and between sentences, and examines its use in the three selected text-types examined here.

4.3 Parallel structure in English and Arabic text-types

The three English and Arabic text-types were analysed with a view to determining the cohesive role and frequency of intra- and inter-sentential parallel structure. This frequency is shown in the following table.

	Intra-sentential Parallel Structure	Inter-sentential Parallel Structure
NARRATIVES		
English	43	11
Arabic	125	28
EDITORIALS		
English	13	2
Arabic	55	18
SCIENCE		
English	26	8
Arabic	53	27

Table 10: Intra- and inter-sentential parallel structure per 3,000 words in each English and Arabic text-type.

The above figures display some qualitative similarities between the two languages across text-type in the distribution of parallel structure within and between text segments. Firstly, in both languages, narrative texts tend to use intra- and inter-sentential parallel structure more frequently than the other two text-types do, though this device occurs almost equally between sentences in the Arabic narratives and science texts. The distribution of this device

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also indicates that its use is much more dense within than between sentences in the three text-types of both languages. Thus, parallel structure essentially contributes most to the intra-sentential cohesion of texts. This finding conforms with Koch's (1981) conclusions concerning parallelism across clauses in Arabic.

Table 10 also displays some quantitative differences across language and text type. Intra- and inter-sentential differences between the two languages are statistically significant at the 0.5 level. This holds true for the three text-types. The difference between Arabic narratives and the other two Arabic text-types in the frequency of intra-sentential parallel structure is also significant at that level. This applies to the difference between English narratives and editorials in this respect.

The following discussion offers some interpretive comments on the cohesive role of this device in the three text-types in both languages.

4.3.1 Parallel structure in English and Arabic narratives

Table 10 clearly points to the tendency of narratives in both languages to utilize parallel structure more frequently than the other two text-types, especially within sentences. It was argued in 4.0 above that narratives are among the types of discourse which employ this device for aesthetic or persuasive purposes. This is particularly so for Arabic. Tentative reasons are given in the course of this sub-section.

Some other tentative reasons for such a tendency can be suggested. Firstly, the fact that narrative has a participant line and an event line which hold it together stipulates the use of

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coordination that is relevant to right branching (Cheong, 1976; Smith and Frawley, 1983). Although subordination can also occur in parallel, parallelism has largely been associated with coordination. Secondly, narrative was found to be largely reliant on additive relations for its cohesion (Smith and Frawley, 1983). This additivity was also found to be a major characteristic of the narratives examined in this corpus (see chapter 3). Therefore, parallel structure is a device favoured in this text-type for highlighting its additivity, which contributes to the connectivity and continuity of its participant line and event line. This is of particular relevance to the Arabic narratives in which coordinate clauses are piled upon one another loosely connected by `wa´ or `fa´ (Holes, 1983). In English, on the other hand, this is not tolerated in the written mode, though it can and frequently is in the spoken mode (Farag, 1986).

The manner whereby parallel structure can serve to ensure the connectivity and continuity of discourse can be exemplified by citing de Beaugrande´s (1980:161) example.

(4.6)   The king was in his counting house,
         counting his money;
         The queen was in the parlour, eating
         bread and honey;
         The maid was in the garden, hanging out
         the clothes;
         Along came a blackbird and pecked off her
         nose.

The juxtaposition of these parallel sentences, de Beaugrande (1980) argues, gives rise to "strong inferences": that the places and events in the text are proximate in their "location" and "time" respectively, and that the "pecked off nose" was the `maid´s´ not the `queen´s´. Thus, in default of explicit relations, parallel structure can play a

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role in inferring such relations, and is the structural feature which highlights the continuity of the text. Placing those parallel sentences side by side also establishes their surface connectivity (ie. cohesion) through the semantic relatedness of lexical items such as `king, queen, maid; counting, money; bread, honey, eating; garden, blackbird, pecked´.

The aesthetic and persuasive effect of parallel structure can be seen in the following example from James Joyce´s `A Portrait of the Artist as a Young Man´.

(4.7)　　His cheeks were aflame; his body was
　　　　　aglow; his limbs were trembling.

This text portrays a situation between the two lovers. The `Artist´ turns away from his lover and his emotional state is very succintly demonstrated in those three parallel sentences, which explicitly show the intensity of the situation. The relation underlying those sentences is that of additivity. Without being overtly realized, that relation can be inferred from juxtaposing those parallel structures. The repeated use of the pronominal (eg. his), the semantically related items (eg. cheeks, body, limbs; aflame, aglow) ensures the surface connectivity of the text. Its semantic continuity is established via the conceptual reltions underlying those surface elements. Each sentence contributes to the intensity of the situation. Those repeated items are easily processed and comprehended, for their occurrence in juxtaposed sentences makes it easy for the reader to locate their antecedents. Consequently, this device can, to some extent, free the reader´s mind away from exerting too much effort to work out surface relations and eventually help him dwell more

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thoughtfully on "conceptual-relational content" (de Beaugrande, 1980).

It was stated earlier that Arabic discourse generally favours parallel structure, especially within sentences. This is much more evident in the narratives studied here. However, stylistic factors play a prominent role in the frequency of this device in narrative. `Taha Hussein´, for example, was found to opt for utilizing this device much more frequently than other authors. It is well beyond the scope of this chapter to investigate further the relative frequency of parallelism in different authors.

Some of the major characteristics of Arabic such as over-assertion, emphasis and musicality (Shouby, 1951; Koch, 1982, 1983; Al-Jubouri, 1983) can be implemented by parallel structure, among other things. Those characteristics entail repetition of certain syntactic and/or semantic configurations within and between parallel structures.

This repetition, Koch (1983) suggests, takes place on all levels (ie. words, clauses, sentences). Repeated elements introduces a certain redundancy into text, and redundancy supplies Arabic with much of its cohesion (Williams, 1983). Parallel structure, then, immensely enhances the cohesive devices in Arabic by repeated use of those elements. This is an example.

(4.8)   fa amma lkit:bu lladi: lam yakun buddun
          min HifZihi: kullih fa´ulfiyyatu bnu
          ma:lik (1) wa amma lkita:bu l´a:xar fa
          majmu:9u lmutu:n (2). wa awSa
          l´azhariyyu qabla safarih / bi´an yabda´a
          biHifZi l´ulfiyya /, Hatta: ida: faraga
          minha: / wa atqanaha: /, HafiZa mina
          lkita:bi l´a:xar ashya:´a gari:ba (3).
          ba9Duha: yusamma ljawhara /wa ba9Duha:
          yusamma lxari:da wa ba9Duha: yusamma

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ssira:jiyya /, wa ba9Duha: yusamma
rraHabiyya /, wa ba9Duha: yusamma:
la:miyyatu l´sf9a:l (4).

(Nl, Appendix B)

As for the book which he had to learn
completely it was `ulfiyyat bnu Maalik
(1). And as for the other book it was
`majmo9´ almutoun´ (2). And the Azhari
had recommended before his departure that
he (the boy) start with `Al-ulfiyya´
until he finished it and learned it
perfectly, he learned strange things from
the other book. Some of them are called
aljawhara, and some of them are called
alkhariida, and some of them are called
alsiraajiyya, and some of them are called
alrahabiyya, and some of them are called
laamiyyat alaf9aal.

This example illustrates the frequency of loosely connected parallel
clauses which run in one sentence, a feature which lends musicality to
the text. This is achieved by repeated use of equally balanced
clauses which also repeat same items (ie. some, called). They also
emphasise the cumulative burden of learning many things so that one
can be a knowledgable person, a target which `the boy´ in that story
dreamed to attain. In other words, those parallel clauses aim at
underlining that point.

This text exemplifies Koch´s (1981) `listing parallelism´.
Complete syntactic units are used in parallel. Putting the things to
be `learnt´ in such a list indicates that the `strange things to be
learnt´ have the same level of generality. By doing so, listing
parallelism, as Koch (1981) argues, contributes to the cohesion of
text.

Apart from their rhetorical effect, those parallel clauses
and sentences (ie. sentences 1 and 2) contribute to the surface
connectivity (ie. cohesion) and the semantic continuity (ie.

coherence) of that text. Its surface connectivity is established through repetition of some pronominals (eg. he, them, it), the additive `wa´ and `as for´, the comparative `other´ and the same items `book, learn, ´ulfiyyat bnu Maalik, called, some´; whereas its semantic continuity is ensured by the relatedness of certain items such as `started, finished; names of topics´ (eg. jawhara, siraajiyya - etc) which all pertain to `strange things´.

Written English, on the´ other hand, does not favour such a frequency of parallel structure in one sentence. Example 4.7 above shows that two parallel sentences can be tolerated. Even intra-sentential parallel structure cannot run infinitely in the way it does in Arabic.

For example:

(4.9)   All is ripling, all is dancing, all is
         quickness and triumph.

         (From Virginia Wolf´s `The Waves´)

In this text, only two parallel clauses run in one string. Unlike in the above example, `and´ does not join the three clauses. Their additivity can be deduced from the underlying conceptual relation which need not be overtly manifested. The continuity of those three clauses derives from that semantic relation that is expressed through the items `ripling, dancing and quickness and triumph´. They form part of a picture which portrays happiness and great joy.

Inter-sentential parallelism is not very frequent in the narratives of both languages. However, it is still comparatively favoured more by the Arabic narratives than by their English

counterparts. Inter-sentential parallelism in the Arabic narratives represents Koch's (1981) cumulative parallelism, in that it is not complete. Instead of showing the level of generality of things used in parallel, cumulative parallelism, it was stated above, creates an intellectual momentum which is further highlighted by lexical echoing that reflects the content of the text. This is an example:

(4.10)   awa   lam yaqul hamma:m   annahu: lan
         yufarriTa fi: hawa: sa:ra.....(1) awa lam
         yaqul annaha: Hilyatan mu:naqa.....(2)

         (N6, Appendix B)

         Didn't Hammaam say that he would not
         dispense with Sara's love....(1) Didn't
         he   say   that   she   was   an   elegant
         ornament....(2)

Inter-sentential parallelism is maintained here in the first clause of each sentence (ie didn't Hammaam (he) say). This parallelism is broken in the rest of those sentences. Thus, it is incomplete. This is what Koch (1981) calls cumulative parallelism. The lexical echoing of the item `say´, `Hammaan´ and `Sara´ reflects the content of the text which, in fact, revolves around those two characters (ie Hammaam and Sara) and their love story. Koch (1981:178) equates the beginning of such sentences with the `refrain of a ballad´ and "parallelism" which, she argues, "keeps the reader to a definite viewpoint". When the "paradigmatic class of items which share the repeated or parallel "refrain" gets larger, the rhetorical effect of alluding to the class gets more forceful" (ibid: 178). This type of cumulative parallelism creates a `rhetorical rise in momentum: the parallel items at the beginning mark the advent of new ideas (ibid:178). Koch (1981:177) maintains that "cumulative parallelism indicates that a new, more

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intense item is about to begin".

Inter-sentential parallelism, like parallelism across clauses, is not favoured by the English narratives examined in this study. Inter-sentential relations are mostly implicitly expressed. The semantic continuity of discourse is dependent on other means than on parallelism. The thematic movement, which will be discussed in the next chapter, may be one means by which such continuity is established.

4.3.2 Parallel Structure in English and Arabic editorials

Compared with the narratives analysed here, the English and the Arabic editorials tend to use much less parallel structure within and across sentences. A tentative explanation may be suggested. First, editorials deal with diverse factual worlds which stipulate the use of diverse tenses to express different temporal events. Consistency in tense has been recognised as a cohesive device (Hartnett, 1981; de Beaugrande, 1980; Quirk et al, 1973). Such consistency is, to a great extent, maintained in narratives and science texts. On the other hand, the occurrence of diverse tenses breaks parallelism. Second, the short range of the participant line and event line in editorials, as opposed to those in narratives, limits the frequency of parallel structure in this type of discourse. Third, the factual entities of editorials require the use of subordination more than the possible worlds of narratives do. As stated earlier, though subordinate clauses can run in parallel, parallelism is more typical of coordination. Coordination does occur in editorials but it is mostly used adversatively rather than additively. Journalistic discourse, it was argued in Chapter 3,

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Section 3.4.3 coheres adversatively (Smith and Frawley, 1983).

However, this device is comparatively much more frequent in the Arabic editorials than in their English counterparts. This difference can be ascribed to some inherent cultural factors. As discussed in section 4.2, argumentation in Arabic is viewed as one of `presentation´ (Koch, 1981), as opposed to `proof´ in English. The former is used when the truth is clear and the latter when otherwise. Thus, stating a clear truth, in Arabic, results in much repetition, which can be represented by repeated syntactic and/or semantic configurations.

Parallel structure is, then, utilized for persuasive purposes in the Arabic editorials. This is an example.

(4.11)   wa ma: akkadahu: taqri:ru waza:rati
          lxa:rijiyya l´amri:kiyya 9ani Htira:mi
          Huqu:qi l´insa:n fi: miSr/yash9uru bihi:
          kullu muwa:Tin fi: bila:dina / wa yas9ad
          bihi: / wa yaHriSu 9alayh (1).   fa
          Hurriyyatu lfard hiya atmanu ma: yamluk
          /, wa agla: ma: yatamassak bih (2).
          Hurriyyatuhu: fi: an yu9lina ra´yah /, fa
          la: yunakkal bihi: /, wa la: yuTrad min
          waZi:fatih / wa la: yuhaddad fi: rizqih
          (3).   Hurriyyatuhu fi: muma:rasiti
          nasha:Tihi ssiya:si: /, fa la: yuDTahad
          /, wa la: yunbad /, wa la: yuHram min
          mawqi9ih (4).

(NE9, Appendix B)

          And what the report of the American State
          Department has confirmed about human
          rights in Egypt is felt by every citizen
          in our country and he is pleased with it
          and he is keen on it (1). The
          individual´s freedom is the most precious
          thing he owns and it is the most
          expensive thing he adheres to (2). His
          freedom in expressing his ideas, and he
          is not harmed, and he is not fired from
          his job, and he is not threatened in his
          living...(3). His freedom in practising

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his political activity, and he is not
           .   oppressed, and he is not abandoned, and
                    he is not denied his position...(4).

This text explicitly spells out the occurrence of intra- and inter-
sentential parallel structure in the Arabic editorials. Two or three
parallel clauses exist in each sentence, and sentences 3 and 4 are
parallel. The frequency of this device in the above text aims at
emphasising the `freedom´ Egyptian people enjoy. In order to persuade
the reader of that `freedom´, many parallel examples are given within
and between sentences.

           Sentences 3 and 4 represents `listing parallelism´. A list
of issues occurs as a result of `expressing one´s ideas´ and
`practising his political activity´. Those issues acquire the same
level of generality by occurring in parallel. The paradigmatic
patterning of those clauses is shown by the use of the words `harmed,
fired and threatened; oppressed, abandoned and denied´ in the two
sentences respectively. Such listing enhances the amount of injustice
that may be incurred in the absence of `freedom´.

           Furthermore, the role parallelism plays in oragnising and
creating information is displayed in the text. In sentence 1, the new
items `pleased´ and `keen´ reflects the `Egyptian citizen´s´
happiness with the `human rights´ in his country. Thus, the repeated
use of parallel structure in those sentences reflects the content of
the text by creating a new and broader class of issues that highlight
such content. This incorporates semantic cohesion into the text.

           Apart from their rhetorical effect, those parallel
structures abound in cohesive items which contribute to the surface
connectivity of text. For example, the recurrence of the pronominal

`hi´ (it) and the implicit pronoun (he), the conjunctions `wa´ and `fa´ and the same lexical item `freedom´ contributes to the surface connectivity of the text. The continuity of the text is further established by the occurrence of items which have some semantic affinity (eg. felt, pleased, keen; individual, citizen, country; own, adhere; precious, expensive; harmed, fired, threatened; oppressed, abandoned, denied; position, job, living; practise, activity). Moreoever, the juxtaposition of those parallel sentences (ie. sentences 3 and 4) gives rise to inference regarding their underlying additive relation which is not explicitly realized. Thus, this device can provide clues as to what conceptual relation obtains between sentences.

This device is not, however, favoured by the English editorials, since it raises redundancy in an editorial to too high a level which, although accepted in Arabic, is frowned upon in formal written English texts.

4.3.3 Parallel strucure in English and Arabic science texts

English and Arabic behave similarly in that both languages use parallelism less frequently in editorials than in science texts. A distinguishing feature of Arabic, however, is that editorials and science texts have distinct patterns. Whereas Arabic science texts and editorials employ parallelism at the intra-sentential level with equal frequency, at the inter-sentential level, science texts use more parallelism than editorials. The Arabic science texts are more in line with the Arabic narratives in this respect.

The greater frequency of parallelism in science texts suggests that the clearer the pedagogic function of author vis a vis

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reader, the more likely it is that parallelism will increase. In a pedagogic setting, the intake of new information has to be correctly paced, otherwise the learner/reader will be overwhelmed.

There is some implication that the political demagogue controls his political audience in much the same way as a teacher controls information flow for his students. The masses must be moved, but only one small step at a time.

The fact that editorials display less parallelism than science texts suggests that the pedagogic function of editorials is more covert than that of science texts.

Compared with their English counterparts, the Arabic science texts allow a great deal more parallelism at the intra- and inter-sentential levels. Therefore, whereas the English science texts, like the other two English text-types, largely reject parallel structure, this device seems to be favoured here as in the other varieties of Arabic written discourse. Here is an example

(4.12)   wa   huna:ka   naw9un   ta:nin   mina
           lha:ydroji:n waznuhu ddariyy (2) /, wa
           taHtawi: nawa:tu darratihi: 9ala:
           bro:to:n wa:Hid wa nyu:tro:n wa:Hid (1).
           wa   naw9un   ta:lit   mina   lha:ydro:ji:n
           waznuhu   ddariyy (3) /,   wa taHtawi:
           nawa:tuhu: 9ala bro:to:n wa:Hid wa
           nyo:tro:nayn (2).

           (S4, Appendix B)

           And there is a second kind of hydrogen,
           its atomic weight is (2), and its nucleus
           contains one proton and one neutron (1).
           And a third kind of hydrogen, its atomic
           weight is (3), and its nucleus contains
           one proton and two neutrons (2).

Again, 'wa' joins two parallel sentences and two parallel clauses within each sentence. The frequency of some cohesive elements

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within those parallel clauses and sentences highlights the surface connectivity of text. For example recurrence of `wa´ and repetition of some lexical items such as `hydrogen, proton, neutron, atomic, weight, nucleus, contain´ contribute to the cohesion of text.

This text exemplifies listing parallelism in which two types of `hydrogen´ are listed in parallel. Intra- and inter-sentential parallelism is complete here since complete syntactic units are repeated. Placing the two types of `hydrogen´ side by side reveals their equal level of generality. This, in turn, provides cohesion to the text.

Although English science texts, on the other hand, do not tolerate this device, the need sometimes arises when a string of parallel clauses or sentences are relevant to elaborate a certain point. For example, `collapse´ in the following text may be caused by several factors. These are given in semi-parallel sentences.

(4.13)   Collapse may be due to many causes: it
         may be practical, confined to certain
         building elements without affecting the
         entire structure; it may be due to local
         overloading or vibration; or it may be
         caused by very unusual circumstances...

         (S2, Appendix A)

The probable causes of `collapse´ are given in those sentences which are not completely parallel. However, such elaboration is not likely to occur in the other two types of discourse in the same manner. Here again the repeated use of cohesive element (eg. it) ensures the text connectivity. The semantic affinity of words such as `collapse, building, structure, overload´ contributes to the continuity of that text. The alternative relation between those sentences is also easy

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to deduce by having them in such a sequence.

Some psycholinguistic implications of parallelism are given below.

4.4 Psycholinguistic Implications of Parallel Structure

The implications of parallel structure for the processing and comprehension of discourse have been alluded to in 4.0 above. As de Beaugrande (1980) argues, this device frees the reader's attention away from "parsing surface structures", and hence helps him concentrate more heavily on the `conceptual-relational content´ of the discourse. That is because placing parallel clauses or sentences in juxtaposition renders their conceptual relationships easy to infer, and hence explicit manifestations of those relationships is not necessary.

In the above cited Arabic examples, `wa´ is predominantly used to join parallel clauses and sentences. This conjunction has different meanings (see Quirk et al, 1973 for details on `and´). The repeated use of `wa´ to express different conjunctive relations is in a way an appeal to the pragmatic relations underlying surface structures. In other words, inferring the appropriate relationship between parallel clauses or sentences is something the reader has to work out. To do so, the reader has to invoke his text and world knowledge. This is more obvious in English where explicit relations between parallel structures are not normally realized. But because parallelism is more typical of Arabic than of English, this device must have a significant effect on the processing and comprehension of Arabic discourse. This effect should be experimentally establishable.

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Listing parallelism, which is very frequent in the Arabic texts, "indicates that the new item is textually and rhetorically the same as the preceding one" (Koch, 1981:177). Repetition of same items in parallel clauses or sentences must in some way facilitate text processing and comprehension, in that the memory search instigated by a non-new item or structure is bound to be very short. Antecedents for anaphors always lie in adjacent clauses or sentences which must facilitate and expedite processing and eventually comprehension.

Cumulative parallelism can equally affect the processing and comprehension of text. It has been argued above that this type of parallelism creates new language items and builds up a momentum of ideas, in which ideas follow one another in a flow. The semantic relationships between the new items created by cumulative parallelism may require a reader to resort to his pragmatic world knowledge. Thus, while listing parallelism seems to appeal to the reader's textual knowledge, cumulative parallelism seems to appeal to both his text and world knowledge.

The fact that the Arabic narratives make use of more parallelism than the other text-types therefore leads us to conclude that they are easier to process and comprehend.

This interpretation of the findings is testable and deserves empirical exploration. Chapter 6 concerns itself with just this task.

4.5 Summary

In this chapter, an attempt has been made to shed some light on the cohesive function of parallelism. It has been found that besides its persuasive, aethetic and forceful functions (ie in political, rhetoric, religious rhetoric and poetry), parallelism can contribute to the semantic unity (ie. cohesion) of the text. Two types of parallelism have been discussed: `listing parallelism´ and `cumulative parallelism´. The first stipulates repetition of same words; the second creates new but semantically related language items. By repeating exact words, listing parallelism highlights the textual and rhetorical function of text. The textual aspect is represented by the semantic unity instilled into the text by repetition of cohesive lexical items. Such repetition suggests that the informational value of parallel clauses and sentences are the same, which contributes to the rhetorical effect of the text.

Cummulative parallelism also serves textual and rhetorical functions. The semantic relatedness of newly created items integrates semantic continuity into the text. The momentum of ideas effected by this type of parallelism has a forceful rhetorical impact on the reader.

The role parallelism can play in the processing of text has also been illuminated. Both types of parallelism affect the processing and comprehension of text. Listing parallelism keeps the semantic identity of antecedents, which are explicitly stated in the prior discourse, foregrounded. This facilitates their retrieval and eventually the processing of given information. Cumulative parallelism is suggested to appeal to the reader's text and world knowledge. By repeating the same syntactic and semantic

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configurations it serves the same processing functions as those of listing parallelism. But creating new items, when parallelism is broken, entails making recourse to one's world knowledge in order for given anaphors and previous antecedents can be connected.

Arabic and English texts display marked differences in the utilization of parallelism. Generally, whereas English seems to limit parallelism, especially in editorial and science texts, Arabic seems to opt for it as a preferred rhetorical device; in that in English two or almost three parallel units (ie. clauses or sentences) occur, in Arabic more than six can take place.

Parallelism is most frequent in fiction and least frequent in editorial texts, though between clauses the difference between Arabic science texts and editorials is peripheral. This difference is more noticeable in English. Some pedagogic interpretation has been given above. In essence the explanation offered is that the intake of new information has to be appropriately paced for a learner of scientific concepts, otherwise the learner/reader will be overwhelmed. In editorials, the editor often adopts the role of "clarificator", who teaches the audience, hence he has to control information only one small step at a time.

Within the limited scope of this thesis, the other functions of parallelism (ie. aesthetic and persuasive) cannot be explored. These may prove worth taking up further by future research within the domains of stylistics and/or literacy criticism. Widdowson (1975) suggests that stylistic serves an intermediate link between linguistics and literary criticism. Such a relationship, no doubt, has a great bearing on teaching literature because "the value of

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stylistic analysis is that it can provide the means whereby the learner can relate a piece of literary writing with his own experience of language and so extend that experience" (Widdowson, 1975:116). After all, extending the learner´s knowledge of language and his pragmatic experience must be at the core of all human sciences.

Cohesive Role of Thematic Patterns

5.0 Introduction

This chapter focusses on the cohesive function of thematic patterns in the organisation of the three text-types examined in this corpus. Furthermore, it touches upon the kinds of knowledge involved in those patterns and their psycholinguistic implications for the processing and comprehension of discourse.

Therefore, the chapter is divided into three major sections. The first spells out the nature of thematic structuring; the second provides an account of the most recurrent thematic patterns in the text-types analysed here; the third throws some light on the psycholinguistic implications of those patterns for text processing and interpretation.

5.1 Nature of Thematic Structure

Thematic patterns are one aspect of the structure of discourse. Although H & H (1976) do not include them as a cohesive device, they recognise their role in the organisation of discourse. The remark that

> "The organisation of each segment of a discourse in terms of its information structure, thematic patterns and the like is also part of its structure...., no less important than the continuity from one segment to another."

(H & H, 1976:299)

For some linguists, the continuity of discourse is held to stem from the distribution of information over its segments (van Dijk,

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1977). That each sentence should indicate the relation between old and new information is crucial for "the continuity of discourse" (ibid:94).

Interest in the distribution of information structure over discourse segments has given rise to a number of dichotomies. The most well-known of these are: given/new; theme/rheme; topic/comment; subject/predicate. Apart from the diverse terminology, each part of those dichotomies has a counterpart in the other respectively. The dichotomies that are recurrently used in the present chapter are given/new and theme/rheme.

The notion of `theme´ has its roots in the `Functional Sentence Perspective´ (FSP) technique of the Prague School Linguists (Firbas, 1966, 1971; Danes, 1964, 1974 among others.) The FSP technique is essentially concerned with the distribution of a degree of communicative dynamism (CD) over the clause or sentence elements. Danes (1964) identifies `CD´ "in terms of the degree to which an expression advances, or fails to advance, the process of communication" (in Lyons, 1977:509). The theme carries the lowest degree of CD, whereas the rheme has the highest degree of CD (Williams, 1983).

Theme is further associated with given information and rheme with new information. Theme and rheme are determined by the speaker. What the speaker treats as "recoverable either anaphorically, or situationally" is said to be given information, while what he "presents as not being recoverable from the preceding discourse" is labelled new information (Halliday, 1967:204). Chafe (1976:30) also refers the assignment of given and new information to

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the speaker who decides whether or not the information is "in the consciousness of the addressee at the time of the utterance". Lyon's (1977:507) definition of theme and rheme is not different from Halliday's and the Prague School Linguists'. He considers theme "the expression used by the speaker for what he announces as the topic of his utterance: it is the thematic subject". Rheme, for him, refers to "the information which the speaker wishes to communicate". However, some linguists conceive of given information as what the listener can "identify uniquely", whereas new information is, on the other hand, "unidentifiable" (Clark and Clark, 1977:92).

'Newness' is, in fact, a relative phenomenon, and it must be related to the notion of 'Given' (van Dijk, 1977). He asserts that "newly introduced individuals are related to at least one of the individuals already present" (ibid:94).

The position of theme and rheme in a clause or sentence has resulted in some controversy. For some linguists, theme occurs initially and rheme finally in a clause or sentence (Halliday, 1979; Danes, 1974; Firbas, 1975). The theme of a clause or sentence, Firbas and Danes argue, is what has been mentioned before, or the backgrounded information; the rheme is what has been said about the theme, or the foregrounded information. Halliday (1969:180) suggests that theme is represented by "the subject of a declarative sentence, the WH-element of a WH-interrogative and the finite verb in a polar interrogative". Lyons (1977:507), however, has reservation as regards the correlation between "thematic status and initial position". Irrespective of their position in a clause or sentence, theme and rheme in the present study are viewed as introducing information which is either recoverable or unrecoverable from prior discourse

respectively.

As for · the role of theme in the organisation of discourse, Enkvist (1973:115) considers the study of theme as important as that of "ordinary syntax for describing patterns of sentence". He envisages the task of intersentence grammar and text linguistics as being of prime significance for "describing patterns of thematic cohesion in a string of sentences" (ibid:116). To this effect, Enkvist (1973:116) holds that a `Theme Dynamics´ is needed because

> "theme dynamics charts the patterns by which themes and rhemes recur in a text and by which they run through a text, weaving their way from clause to clause and sentence to sentence".

Although Enkvist is sceptical about the correlation between theme and initial position, he maintains that this is often the case, but not always. Lewis (1982) also maintains that thematic or rhematic elements can occur initially in a clause or sentence. However, placing thematic elements in initial position "is often communicatively significant" (ibid:52). Lewis (1982:53) delineates Danes´s (1974) thematic patterns (TP) as follows: T=Theme, R=Rheme.

(a) T_1 --- R_1 <u>Simple Linear TP</u>

        T_2 --- R_2

($T_2 = R_1$) eg. "The giant frightened everybody" "They hid in the woods".

(b) T_1 --- R_1 <u>TP with continuous Theme</u>

      T_2 --- R_2

($T_1 = T_2$) eg. "The giant frightened everybody" "He ran after them".

(c)   T

T_1 --- R_1 T_2 --- R_2

eg. "The giant was huge". "His hands were enormous".   "His feet were like bath tubs".

Giora (1983) considers the simple linear thematic pattern in which the rheme of one sentence yields the theme of the next a cohesive principle. However, she has not investigated the different thematic patterns in different text-types. For Grimes (1975:113), cohesion is associated with the introduction of "new information and keeping track of old information, rather than with what the content of the new or old information actually is". Thus, information structure in terms of given/new contributes to the cohesion of discourse.

Finally, given information has been often associated with definite expressions, and new information with indefinite items (Brown and Yule, 1983:169). These linguists argue that definite and indefinite expressions can be realised by "lexical units" which are semantically related to already mentioned units, "anaphoric or exophoric pronominals" or by "pro-verbs". But although Chafe (1976) holds that associating given information with definiteness is quite plausible, he asserts that this is not always the case. In "I saw the milkman...", the term `milkman´ is introduced as new information, albeit definite. However, this correlation between given information and definite expressions and new information and indefinite ones may have some bearing on the processing and comprehension of discourse. This suggestion is elaborated on in Section 3 in this chapter.

Investigating thematic patterns is of particular

relevance to written Arabic discourse which, as Williams (1983:124) remarks

> 'tends to repeat the theme in successive clauses more frequently than English does, even when it is grammatically possible to omit it. And in written Arabic the theme of a clause tends to have some referent as the theme or rheme of the previous clause more frequently than English'.

However, the notion of theme/rheme in Arabic has not been thoroughly explored. It is, therefore, discussed in some detail below.

Notion of theme in Arabic

Williams (1983:121) found Halliday's (1979) definition of theme "inadequate for a treatment of Arabic". He offers two reasons for such inadequacy. One is the frequent sentence order VSO; the second is the "freer word order" in Arabic, as compared with English. He, therefore, opts for the Prague School Linguists' 'functional Sentence Perspective' (ESP), according to which theme and rheme are designated in view of their 'communicative dynamism' (CD).

Owing to the Verb-Subject-(Object) order of a verbal Arabic Sentence, and the several functionals (eg. inna, anna, la9alla, amma:, etc) that are usually placed at the beginning of a nominal sentence, due care must be taken when the theme of an Arabic sentence is assigned. As for the theme of a verbal sentence, Beeston (1970:63) argues, it is always the noun phrase that follows the verb. He calls it "the logical theme". By this token, in 'died the king', 'the king' is the logical theme.

In a nominal sentence, the theme, Beeston (1970) suggests,

always occurs initially. And the functionals `inna, anna and la9alla´ assign an object status to the theme which follows them. But the functional `amma:´ points out an emphatic contrast between the theme it precedes and another entity in the previous discourse. It is common to have `fa´ with `amma:´ to mark the beginning of the predicate. In this case, whatever comes before `fa´ is the theme, as in Beeston´s (1970:66) example:

(5.1)   ha:da: ma: jara: fi: miSr amma: fi shsha:m fa xtalafat
          aHwa:lu lbila:di 9an da:lik.

          This is what happened in Egypt; in Syria (with raised
          tone), the conditions of the country were different
          from that.

According to Beeston´s definition of theme, it is not clear whether only `fi shsha:m´ (in Syria) or the elements `ha:da: (this... Syria)´ is the theme of this sentence. On the other hand, when a phrase comes before the subject, as in `fi lyawmi tta:li: ja:´a abu:hu´ (on the following day, came his father), `his father´ is the unmarked theme, whereas the prepositional phrase is the theme proper.

Applying certain transformational rules to some Arabic sentences, Anshen and Schreiber (1968), Snow (1965) and Lewkowicz (1967, 1971) agree that the comment of what they call "a topic-comment sentence, when first generated, must contain an NP that in its original form is identical, except for case, with the topic" (Lewkowicz, 1971:813). For example, in the `topic-comment sentence´ `alwaladu ja:a´a abu:hu´ (the boy - his father came´) is the comment which has the NP `his father´ which, in turn, contains the replacive pronoun `his´ that refers to the topic `the boy´. But whereas Snow (1965) and Anshen and Schreiber (1968) consider a topic-comment

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sentence as essentially a `re-ordered simple sentence´, Lewkowicz (1971) views it as NP + S, as traditional Arab grammarians do. Lewkowicz (1971:810) also proposes "a severe restriction.... on the structure of the sentences to be embedded as relative clauses".

However, almost all the linguists who tackled the notions of theme/rheme or topic/comment in Arabic agree on which element(s) in the sentence to be labelled theme/topic or rheme/comment. But Beeston´s (1970) treatment of theme which avoids the intricate transformational rules, seems to fit in with the purpose of this study, and will, therefore, be opted for in the present analysis. However, in the case of 5.1 above (ie. This is what happened in Egypt...) the text will be viewed as consisting of two grammatically independent sentences, each has its own theme.

It should be noted that in the following discussion only the most recurrent thematic patterns in the three text-types are emphasised. The rationale for this choice is based on the role of those patterns in introducing the given information that has to be tied up with the prior discourse. By this token, thematic patterns contribute to the continuity of discourse. The role of rhematic patterns in ensuring this continuity cannot be ignored. If thematic patterns establish the surface connectivity (ie. cohesion) of discourse through recurrent semantically related items, rhematic patterns, may be assumed to establish the underlying semantic continuity (ie. coherence) of discourse via their relatedness to the overall topic. However, it is beyond the scope of this thesis, which is not primarily meant to investigate the information structure of discourse, to explore rhematic patterns. The kind(s) of knowledge involved in rhematic patterns is a considerable task that needs

further exploration.

5.2 Thematic patterns in English and Arabic text-types

The frequency of cohesive devices (including parallel structure) was shown in Chapters 3 and 4 to be greatly affected by text-type among other factors. Similarly, the frequency of thematic patterns is also expected to vary from one text-type to another. However, as certain text-types exhibit some similarities in the density of a certain type of cohesion (ie. lexical cohesion in editorials and science texts), thematic patterns may be, in some ways, similar in certain text-types. These patterns can be affected by some factors such as the nature of worlds typical of a text (ie. factual vs possible), the participant and event lines, and by some rhetorical and cultural factors typical of each language. In other words, thematic pattern is partly dependent on language choice and partly dependent on text-type.

The following discussion throws some light on the most recurrent thematic patterns in each text-type in both languages.

5.2.1 Thematic patterns in English and Arabic narratives

Thematic patterns have to be contextually illustrated. The following text is part of the first paragraph of Drabble's `Jerusalem the Golden' (see N5, Appendix A).

(5.2)   `Gabrial had known for some time before
kissing Clara that he was about to kiss
somebody (1). He was on the whole an
honourable man, and had not kissed anyone
except his wife since his marriage, save in
the way of courtesy, so the act was for him a
significant one (2). He was slightly uneasy
about the lack of choice and the sense of
desperation which had finally pushed him to

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it, but did not feel they reflected ill upon Clara (3); he truly admired her, and the eagerness with which she had returned his onslaught had turned, through relief, his admiration into a kind of love (4).'

In this text, the themes of the three sentences following the first one repeat the same theme (ie. he) which refers to the theme of the topic sentence. This thematic progression which recurs through the whole paragraph represents pattern `b´ in which a passage has "run-through themes" with different rhemes. Thematic pattern `b´ seems to be the most frequent in fictional narratives. This pattern contributes to the continuity of the participant line, which is held to hold the narrative together (Gutwinski, 1976; Cheong, 1978). That is why it is favoured as the pattern which weaves across the sentences of a narrative.

However, other patterns, especially `a´, occur between sentences in a narrative, though much less frequently. This is an example.

(5.3)   Tom Brangwen never loved his own son as he loved his step-child Anna (1). When they told him it was a boy, he had a thrill of pleasure (2). He liked the confirmation of fatherhood (3). It gave him satisfaction to know he had a son (4). But he felt not very much outgoing to the baby itself 95). He was its father, that was enough (6).

(N8, Appendix A)

The theme in sentence 4 (ie. It) refers to the rheme of the preceding sentence (ie. confirmation of fatherhood). This thematic pattern represents pattern `a´ in Danes´s (1974) classification. Another thematic pattern occurs in sentence 2. `They´, the theme of the subordinate clause does not repeat any previous theme or rheme.

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Rather, it is semantically related to the topic of the paragraph. Drawing on his world knowledge of a `birth´ situation, the reader can assign the anaphor `they´ to the people who told `Tom Brangwen´ about the `baby-boy´. Thus, thematic patterns can involve two kinds of knowledge: textual knowledge and world knowledge. The first entails connecting incoming with ongoing information within a text; the second stipulates making inferences that are necessary for a thorough understanding of the discourse. The thematic pattern in sentence 2 is in line with pattern `c´ in Danes´s (1974) taxonomy. However, this pattern is, like pattern `a´, much less frequent than pattern `b´ which can still be seen in this example (ie. sentences 3, 5 and 6).

Intra-sentential thematic patterns display similar consistency, in that either the same theme recurs in adjacent clauses, which is normally the case, or the theme of one clause derives from the rheme of the preceding one. For example, in the above text, the theme of the subordinate clause (ie. he) in the first sentence refers to `Gabriel´, the theme of the main clause. The second sentence consists of three clauses. The themes in the main clause and the second coordinate clause are the same (ie. he). In the third subordinate clause, the theme (ie. the act) refers to the rheme of its preceding clause (ie. kissing). This thematic pattern recurs in sentence 3. Thus, thematic patterns across clauses demonstrate almost the same consistency and regularity as those occurring between sentences, in that patterns `b´ and `a´ are predominantly used. The first is, however, more frequent. Intra-sentential thematic movement, thus, highlights the continuity of the participant line of a narrative. This is established by keeping the theme foregrounded in

discourse and hence tying incoming with ongoing information becomes easier. The slight difference between thematic patterns within and between sentences seems to largely lie in the kinds of knowledge involved. Whereas inter-sentential thematic patterns appeal to both types of knowledge (ie. textual knowledge and world knowledge), those occurring across clauses seem to lend themselves to textual knowledge more heavily.

The Arabic narratives also seem to favour pattern `b´ which is characteristic of almost all varieties of Arabic written discourse. Therefore, recurrence of same themes in successive sentences is quite noticeable. This is an example.

(5.4)   qaTa9u: Tari:qa lharam fi: daqa:´iq (1). tumma
          n9aTafu: naHwa Tari:q saqa:ra (2). wa huna:ka nsa:bati
          ssayya:ratu fi: sur9atin gayri 9a:diyya fi: Tari:qin
          muZlimin muqfir (3). wa waDaHat ma9a:limu TTari:qi
          ba9Da shshay´i 9ala: Du:´i ssayya:ra (4). fa ida:
          bihi: yamtaddu fi ZZala:mi bila: niha:ya, maHfu:fan
          mina lja:nibayni bi´ashja:ri lja:zo:ri:na
          DDaxma/tatala:qa: agSa:nuha: fil´a9la: (5). wa
          yaktanifuhu: mina nna:Hiyatayni faDa:´un ri:fiyyu
          lmanZari wa nnasmati wa lwaHsha (6) yujalliluhu
          SSamtu/, wa yashuqqu jana:Hahu l´aysara biTu:li TTari:q
          tir9atun qa:timatu lwajh (7). tattaDiHuhu ba9Du
          suTu:Hiha: bilawnin raSa:Siyyin ga:miq
          mumayyazin/9amma: Hawlaha: taHta Daw´i nnuju:mi lxa:fit
          (8).

(N2, Appendix B)

They crossed Al-Haram Road (1). Then they turned to
Saqara Road (2). And there, the car sped up in a dark
road (3). And the boundaries of the road became clear
under the car light (4). It was stretching endlessley,
surrounded from both sides by jarozina trees/whose
branches met (5). And it was enveloped from both sides
by a rural space (6). It was covered with silence/,
and it was crossed by a dark canal (7). Its surface
appeared to be dark grey, distinct from its surrounding
under the faint light of the stars (8).

Thematic pattern `b´ recurs in sentences 1 and 2. It also

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takes place in 4, 5, 6, and 7. The theme in sentence 3 (ie. the car) repeats another theme in the same paragraph. Whereas the theme in 8 refers to the rheme of the preceding sentence. thus, thematic pattern `b´ is the most dominant and `a´ is very much less frequent in those narratives.

However, the Arabic narratives, like their English counterparts, can repeat themes which have to be retrieved from the situation, as in the following example.

> (5.5)   . nahaDa ba:kiran jiddan dalika SSaba:H (1). ka:na lxa:dimu qad rafa9a ssari:ra ila: saTHi lfunduq...(2).
>
> (N3, Appendix B)
>
> He woke up very early that morning (1). The servant had put the bed on the roof of the hotel (2).

The theme in the second sentence has no previous mention. It can, however, be retrieved from the situation. In a `hotel´ situation, a servant is likely to exist.

Thus, thematic patterns across sentences are very similar in the Arabic and the English narratives. These patterns also involve both textual knowledge and world knowledge as those occurring in English.

Across clauses, thematic patterns in the Arabic narratives show a great deal of consistency as those taking place across sentences. A look at sentence 5 above shows that the theme of the relative clause (ie. whose branches...) refers to the previous rheme (ie. trees). In sentence 6, the same theme (ie. it) recurs in both coordinate clauses. Thus, theme movement at the intra-sentential level mostly represents pattern `b´ and less frequently `a´. Intra-sentential thematic patterns in the Arabic narratives, like those in

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their English counterparts, seem to largely involve textual knowledge.

Thus, text-type plays a prominant role in determining the type of thematic patterns in discourse. Both the English and the Arabic narratives favour almost the same types of thematic patterns (ie. mostly `b´ and less frequently `a´) within, and between sentences. These patterns seem to highlight both the participant and the event lines and the cohesion of those narratives. This is established by recurrence of same themes or ones related to preceding rhemes, the thing that enhances the number of cohesive devices. For example, in the above-cited texts either pronominal co-reference items or definite noun phrases are repeated. These co-refer with already stated elements. In this way thematic patterns do contribute to the cohesion of text.

5.2.2 Thematic patterns in English and Arabic editorials

The diversity of the factual worlds of editorials and the short range of their participant line, compared with that in narratives, may give rise to some inconsistency in intra- and inter-sentential theme progression. A variety of thematic patterns is expected to exist in the English editorials examined here. The Arabic editorials, like other varieties of Arabic written discourse, would favour repetition of same themes or previous rhemes. Consequently, while the English editorials and narratives may favour different thematic patterns, their Arabic counterparts may display great similarity in this concern.

In the English editorials, thematic pattern `c´ in which "progression of derived themes (there is one hyperthema and several Teilthemen)" (Danes, 1970:77) may be predominantly recurrent.

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The following paragraph illustrates theme movement in one
of the English editorials.

> (5.6)   This week's film from Ethiopia is just the beginning
> (1).   Most of Africa is heading into what the World
> Bank   calls a `nightmare' of famine and economic
> collapse (2).   This year's drought, the worst for 15
> years, has yet to take its toll, and next year's
> harvest is expected to be even worse (3).   Even this
> disaster is no more than a small downward turn in a
> steady decreasing trend (4).   One-fifth less food is
> produced for every African now than in 1960, and if the
> trend continues the crop in 1988 will be no better than
> this year's terrible harvest, even if the weather is
> good (5).
>
> (NE8, Appendix A)

The themes in the sentences of this text are derived from
the `hypertheme' (ie.  `Famine in Ethiopia') of the editorial.   They
are semantically related to it.   None of them repeats a previous theme
or rheme.   Frequent repetition of same themes which is accepted in a
narrative would be frowned upon in an editorial.   The above text does
not have a participant line which calls for such repetition.   Rather,
it deals with factual worlds which entail elaborating on diverse
aspects of a major hypertheme.   Thus, theme movement across sentences
in the text largely corresponds with Danes's (1974) pattern `c'.

However, other thematic patterns are plausible in an
editorial.   Editorials, it was suggested in Chapter 3, can have a
participant line whose range is not as long as that in narratives.
When this participant line maintains, pattern `b', which is the most
frequent in narratives, recurs in editorials.   For example, in the
second paragraph of NE4, Appendix A `two men' (ie. M Georges-Andre
Cheballaz and Herr Willi Ritschard) are referred to.   Accordingly, the
themes in successive sentences in that paragraph run as follows: `The

two men´, `Herr Ritschard´, `Losing them´, `Both men´, `Herr Ritschard´ and `he´ respectively. This theme progression typifies pattern `b´ which is brought about by the participant line running through the paragraph. However, it does not continue as long as it does in narratives.

Thematic pattern `a´ in which the theme in one sentence refers to the rheme of a previous one occurs less frequently in the English editorials. This is an example.

(5.7)   The UN has improved conditions for ending or containing violent quarrels between its <u>members</u>. <u>They</u> may....

(NE2, Appendix A)

A theme of a sentence has sometimes to be retrieved from the situation, because it has no previous mention in the editorial. This is an example.

(5.8)   In normal times the latest unemployment figures would have cast floom over the Tory Conference this week. As <u>these</u> are hardly normal times,..........

(NE9, Appendix A)

Reference in the second sentence is made to `these times´, a theme that has to be decoded by making recourse to the situation.

Theme movement in editorials, therefore, involves world knowledge more than text knowledge. A reader has to invoke his prior knowledge of the world so that diverse entities can make up one hyper topic, if so to speak. The diversity of the factual worlds of editorials, as opposed to the possible worlds of narratives, accounts for the diverse thematic patterns across the sentences of an editorial.

Thematic patterns within sentences are, on the other hand, more consistent, in that themes in dependent clauses mostly repeat previous themes or rhemes. The following example is an instance of this regularity.

> (5.9) Since the <u>Soviet proposals</u> do contain constructive elements, there is no absolute reason why <u>they</u> should not be the basis of negotiation.
>
> (NE5, Appendix A)

The underlined theme in the third clause refers to that in the first (ie. Soviet proposals). In the following example, the theme in one clause refers to the rheme of an adjacent clause.

> (5.10) The region´s chairman, Dame Betty Patterson, wrote to authority <u>members</u> asking how <u>they</u> would vote and telling <u>them</u> that if <u>they</u> didn´t support the cuts, <u>she</u> would sack them.
>
> (NE10, Appendix A)

The underlined themes in the second and the third clauses refer to the preceding rhemes. `She´, the theme of the fourth clause, refers to the theme of the first clause (ie. region´s chairman). Thus, thematic patterns across clauses in the English editorials very often represent `b´ and `a´. This results in more consistency in intra-sentential theme progression than that between sentences.

However, quite less frequently, the theme of one clause does not refer to a previous theme or rheme but is rather related to the hypertheme of the editorial. This is shown in the example.

> (5.11) The breakup is expected to mean that <u>local rates</u> will go up, <u>long distance rates</u> will continue to fall, <u>customers</u> may receive multiple bills and <u>the telephone equipment market</u> will become competitive.

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All the underlined themes are semantically related to the hypertheme of the editorial (ie. The breakup of the American Telephone and Telegraph Co.).

Thus, while intra-sentential thematic patterns largely involve textual knowledge, they sometimes involve world knowledge.

In the Arabic editorials, on the other hand, intra- and inter-sentential theme progression represents patterns `b´ and `a´. this reflects a tendency typical of Arabic written discourse to repeat the same themes in successive sentences or themes referring to or derived from previous rhemes. This largely rests upon the editor´s interest in emphasising the main point(s) of his editorial and eventually persuading his readers. This is an example.

> (5.12)   laqad aSa:ba 19a:hilu ssu9u:di: kabida lHaqi:qa/id
>   lafata l´anZa:ra ila: xuTu:rati ru:Hi tta9aSSub (1).
>   fa tta9aSSubu l´a9ma: huwa lladi: adda: ila: tilka
>   lHarbi dda:miya bayna shaTrayy ba:kista:n/wa asfara 9an
>   taHTi:miha: ila: shaTrayn (2). wa tta9aSSubu l´a9ma:
>   huwa lladi: sabbaba ira:qata dima:´i 9ashara:ti
>   l´ulu:fi mana l´uxwati lmuslimi:n fi lHarbi/llati:
>   tadu:ru raHa:ha: mundu 34 shahran bayna ira:n wa
>   19ira:q (3). wa tta9aSSubu l´a9ma: huwa fi lHaqi:qati
>   sharru lbaliyya/wa hwa lladi yu9aqqidu kulla xila:fin
>   basi:T/Hatta: yuSbiHa mushkilatan musta9Siya (4).

(NE10, Appendix B)

The Saudi King addressed the core of the truth/when he had drawn the attention to the danger of blind fanaticism (1). Blind fanaticism caused the war between the two parts of Pakistan/and brought about dividing it into two sectors (2). And blind fanaticism caused the killing of tens of thousands of the Moslim brothers in the war/which had been waged between Iran and Iraq for 34 months (3). And blind fanaticism is, in fact, the evil/that complicates every simple misunderstanding/until it becomes an unresolved problem (4).

Sentences 2, 3 and 4 in this text repeat the same theme (ie. blind fanaticism). This theme progression represents pattern `b`. Pattern `a` is exemplified in sentence 2 whose theme repeats the rheme of the preceding sentence. Thus, thematic pattern `b` is predominant between sentences in the Arabic editorials. Pattern `a` is, on the other hand, less frequent.

Inter-sentential thematic patterns in the Arabic editorials mostly involve textual knowledge, since they favour repetition of previously stated themes.

Across clauses, thematic movement is very similar to that between sentences. The above example shows that the themes in successive clauses are either the same (eg. sentences 1, 2 and 3) or the theme of one clause refers to the rheme of a previous one (eg. sentence 4). Thus, intra- and inter-sentential thematic patterns are alike. Intra-sentential theme movement also involves textual rather than world knowledge.

Thematic patterns in the Arabic editorials, like those in the Arabic narratives, are greatly affected by the tendency of Arabic written discourse to use lexical repetition and parallel structure. A string of sentences or clauses with the same themes are joined by `wa` or `fa` as the above example clearly shows.

As for the contribution of thematic patterns to the cohesion of those editorials, this is more evident in the Arabic ones. Repetition of same themes enhances the number of cohesive items. In the English editorials, on the other hand, employing semantically related themes seems to highlight the coherence of the text more than its cohesion.

5.2.3 Thematic patterns in English and Arabic science texts

The possible worlds of science, like those of narratives, may produce consistency in thematic patterns within and between the sentences of the science texts examined here. The need for much definition, restatement and exemplification may entail repetition of same themes or ones referring to previous rhemes. This is an example from an English science text.

(5.13)   Patterns are made slightly larger than the required casting, to allow for the contraction of the molten metal/that takes place on cooling. Patterns are also invariably made in more than one piece, to facilitate the removal of the pattern from the mould and help minimise any damage to the mould/that may be caused during this skilled operation.

(S1, Appendix A)

The same theme (ie. patterns) is repeated in the two sentences which make up the paragraph. Thematic pattern `b´ which is represented in this text is the most frequent in the English science texts studied here. However, other patterns are also likely in science, though less frequently than `b´. Successive sentences can have themes which address different aspects of some concept. For example, in the third paragraph of S3, Appendix A, sentences 1, 2 and 3 have the following themes: `The total defect concentration´, `The number of defects per unit volume of a solid´ and `The nature and concentration of defects´ respectively. The three themes, then, tackle various aspects of `defects´ which is the hypertheme of the paragraph. This theme progression is very much similar to Danes´s (1970) pattern `c´.

Thematic pattern `a´ also occurs in those texts. This is an example.

(5.14)   Instead of laying down hard and fast values, the latest
           limit state codes are based on statistics, for example,
           the frequencies of certain windloads or variations in
           tests. These are called characteristic loads/, and are
           augmented by factors allowing for possible deviations
           from such values.

           (S2, Appendix A)

`These´, the theme of the second sentence, refers to
`windloads´ in the rheme of the previous one.   This is thematic
pattern `a´.   Sometimes,  the `theme´ has no previous mention in the
preceding text. Rather, it is based on the information encoded in the
previous sentence.   For example, the theme of the third sentence of
the above text reads as follows: ·`This leads....´.  `This´, here does
not repeat a particular entity, but it summarises the adjacent
sentence immediately preceding it.   It is also feasible to have a
theme that repeats the hypertheme of the science text.   Sentence 4 of
the above text, for instance, has `So the limit state design...´ as a
theme. This is, in fact, the hypertheme of that text.

Thus, inter-sentential theme movement commonly corresponds
to thematic patterns `b´ and `a´ and less frequently `c´. These
patterns mostly involve textual knowledge.   After all science deals
with postulated worlds that are not retained in the schemata of
ordinary readers.   Therefore, reader´s world knowledge is not always
involved in those thematic patterns.

Intra-sentential thematic patterns are also very similar to
those occurring across sentences.   In example 5.13, the themes in the
two relative clauses in both sentences refer to the rhemes of their
adjacent clauses. Thus, thematic pattern `a´ is exemplified here. In
5.14, the theme of the coordinate clause repeates that in the first

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clause (ie. these). Here, thematic pattern `b´ is represented.
Thematic patterns `b´ and `a´ are predominant between clauses in the
English science texts. Like inter-sentential thematic patterns, these
involve textual rather than world knowledge.

The Arabic science texts are very similar to the other
varieties of Arabic written discourse in terms of theme progression.
Intra- and inter-sentential theme movement represents patterns `b´,
which is most dominant, and `a´, the next most frequent pattern.
Here is an example.

(5.15)   yatimmu lbulu:g 9inda lbanat biZuhu:ri TTamat_ wa
           takawwuni SSifa:ti lmumayyiza liljins (1). yabtadi´u
           9a:datan 9inda lmiSriyya:t fi ssana tta:niya 9ashra ila
           rra:bi9a 9ashra (2). wa qad yaZhar_fi ssana lHa:diya
           9ashra/wa yandur qabla da:lik (3). wa kullama
           bta9adna: ila lmama:li̅ki shshama:liyya/kullama
           ta´axxara lbulu:g/id_ yaku:nu fi lquTbi shshama:li: fi:
           Hawa:li: sinn 22 sana (4).

           (S2, Appendix B)

           Puberty in girls takes place with the beginning of
           menstruation and the constitution of the qualities´ of
           sex (1). It usually begins in Egyptian girls at the
           age of 12 up to 14 (2). And it may appear at 11/and it
           rarely occurs before that (3). And as we move
           north/puberty comes late/for it happens at the age of
           22 in the North Pole (4).

The four sentences have `puberty´ as their theme.
Recurrence of the same theme in successive sentences is typical of the
present science texts, as it is of almost all types of Arabic written
discourse. Therefore, thematic pattern `b´ is the most frequent in
those texts.

Other thematic patterns such as `a´ and the one in which
`teilthemes´ are related to a `hypertheme´ occur in those texts,
albeit infrequently. Thus, inter-sentential theme movement embodies

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textual knowledge rather than world knowledge.

Thematic progression across clauses in the Arabic science texts is quite similar to that taking place between sentences. In the above example, the theme of the coordinate clause in sentence 3 repeats that of the first clause, and so is the case in Sentence 4. Therefore, thematic pattern `b´ is also most frequent across clauses in those texts. Pattern `a´ may occur but much less frequently. Intra-sentential theme movement, thus, invokes text rather than world knowledge.

The contribution of thematic patterns to the cohesion of the English and the Arabic science texts is considerable. Recurrence of same themes or ones related to previous rhemes enhances the number of cohesive items within and between sentences.

5.3 Psycholinguistic implications of thematic patterns

This final section attempts to pinpoint, albeit briefly, the psychological implications of thematic patterns for processing and comprehension of the present text-types.

Themes in those texts are expressed either by definite/indefinite expressions (ie. mostly in editorials and science) or by pronominal co-reference elements (ie mostly in narratives). It was stated in 5.0 that a theme mostly introduces old (given) information which needs to be connected with an antecedent in the prior discourse. Locating the appropriate antecedent calls for a memory search. This can usually be short or long. The nearer the antecedent from an anaphor (which is represented by a theme), the easier and faster the memory search is. In addition, explicitly stated antecedents facilitates and expedites that search.

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In the English and the Arabic narratives pronominal co-reference, especially third person pronouns, are most frequently used as thematic elements. Very often, proper names are utilized to refer to the same persons. Locating an antecedent for a pronominal anaphor is both easy and fast to carry out, for an antecedent should reside in the textual environment. The absence of an immediate context of situation in written discourse in general, makes it mandatory that a third person pronoun refer to an explicit antecedent that can be retrieved from the text. Thus, the memory search instigated by an anaphor acting as a theme may be short and easy to tackle. Recurrence of third person pronouns or proper names keeps the identity of antecedents foregrounded, which is expected to facilitate processing and comprehension.

In editorials, noun phrases are mostly used as themes. Repetition of same and definite noun phrases in the Arabic editorials may render them relatively easy to process and interpret. Themes in their English counterparts are semantically related rather than repeating each other. In order for a reader to process and understand an English editorial, he should activate his prior world knowledge so that anaphors are assigned appropriate antecedents. Thus, the memory search for antecedents may be longer and more demanding in the English editorials than in the Arabic ones.

Processing and comprehension of the science texts analysed here may not be significantly different in both languages. Themes in the two languages are mostly introduced by definite noun phrases in Arabic and definite/indefinite ones in English. Repetition of same themes may facilitate processing and comprehending the text.

Furthermore, such lexical repetition, can alleviate the opacity of science texts resulting from their complex lexicon. Hence, recurrence of same themes can, to some extent, make the memory search for antecedents easy and fast.

Recurrence of pronominal co-reference items and lexical elements are among the devices that contribute to the economy and stability of discourse. The principles of economy and stability, de Beaugrande (1980) suggests, play an important role in text processing and eventually understanding.

However, the above assumptions are intuitively oriented. Their verification, which is worth meticulous investigation, requires much empirical experimentation.

5.4 Summary

This chapter has investigated the most frequent thematic patterns in the three text-types in this corpus. The role these patterns can play in the cohesion and processing and comprehension of those texts has been briefly touched upon. Besides, the kind(s) of knowledge involved in them has been outlined, though in passing.

In terms of thematic progression, the narratives and the science texts in both languages were found to favour patterns `b´ and `a´ respectively. Cross language difference lies in the thematic patterns typical of editorials. For whereas the Arabic editorials favour patterns `b´ and `a´, their English counterparts display a variety of thematic patterns, especially pattern `c´.

Thematic patterns can be claimed, as stated earlier, to be partly dependent on language choice, and partly on text-type.

Interestingly enough, intra sentential thematic movement in

each text-type seems to largely conform to that occurring across sentences in the respective text-type. This holds true for narrative and science texts in both languages. However, intrasentential theme progression is more consistent than that between sentences in English editorials. This consistency in the flow of information from clause to clause and sentence to sentence contributes to the continuity of discourse (Labov, 1972).

The main concern here has centred on theme progression. This has been motivated by the assumption that connecting the given information introduced by thematic elements with prior information in a discourse immensely contributes to its continuity. The role of rhematic patterns in this concern should not be overlooked. However, it is beyond the scope of this thesis to investigate it.

Chapter Six

Experimental Study of Role of Cohesion in Text Comprehension

6.0 Introduction

This chapter presents the results of two studies of the effect of a particular type of cohesion on reading comprehension, namely, lexical repetition, which as we have seen is a striking feature of Arabic. In general terms, Arabic allows lexical repetition to a greater extent than English, as is clear from an analysis in three text types, presented in Chapter 3. In addition, the study of textual parallelism presented in Chapter 4 suggests that extensive structural parallelism (which contains an element of repetition) is also more characteristic of Arabic than English.

The impact of repetition on text comprehension is this something which lends itself well to preliminary experimental studies of the role of cohesion in Arabic. The selection of this feature of Arabic textuality for examination in an experimental setting is thus justified by the results of general patterns of cohesion presented in earlier chapters.

The two experiments outlined in this chapter are intended to contribute to the debate on the issue of exactly what difference cohesive patterning makes to text comprehension. The results of the experiments are interpreted in the light of the review of the role of cohesion in text which is presented in Chapter One.

Clearly, a comprehensive experimental study of cohesive phenomena in text processing would select a battery of devices within Arabic; within English; within English texts read by Arabic speakers; and within Arabic texts ready by English speakers. The two studies

reported are to be seen as an exercise in experimental work on cohesion, and more specifically, are intended to show that in the context of English language learning by Arabic speakers a) the absence of Arabic-like patterns of cohesion significantly affects comprehension level, and b) that while the type and frequency of cohesive patterning is an important factor, there is also a separate effect deriving from text-type, and by implication information density.

6.1 Overview of experimental work on cohesion

We have seen in Chapter One, Section 1.2.3 that the experimental work on cohesion has emphasised certain aspects of the function of this textual phenomenon in the processing and comprehension of text. For example cohesion has been shown to be a useful index of social and cognitive factors. The type of reader (eg. normal vs disabled; young vs adult; normal vs well-educated) affects the type of cohesive devices used in a communicative or reading setting. Cohesion has also been found to be indicative of the writer's mental processes (eg. focusing, comparison and classification). In reading, cohesive devices serve as clues which point to the location of necessary information. Thus, coherent texts are held to be less susceptible to forgetfulness than incoherent ones.

However, this is not the end of the story. Many issues are left unresolved. These are outlined in Chapter One, Section 1.2.4. But an important issue needs to be mentioned here. One is to what extent does the characteristic cohesive property of a certain language affect the comprehension of different foreign text types? For it has been assumed that ESL learners need to know about the resources of

cohesion in English (Menke, 1981).

To this end, two experiments are outlined here. They both aim at investigating the impact of lexical repetition, a major cohesive property of Arabic discourse, on the comprehension of English texts by Arabic-speaking students. The role of this cohesive device (ie. lexical repetition) is examined in three text types.

The motivation underlying this experimental work is twofold. One is the consensus among the linguists who have approached Arabic discourse that this language derives much cohesion from lexical repetition (Koch, 1981, 1983; Williams, 1982, 1983). The other rests upon Berman's (1984:142) implication for FL readers who need maximal transparency in marking the relations between one part of the text and another. Trying to explore the impact of syntax on FL readers, she suggests that certain cohesive devices, namely ellipsis and substitution, may affect the transparency of a text. This transparency may be seriously impaired in the case of learners whose language "not only tolerates but approves of lexical and grammatical repetition as a preferred rhetorical device" (ibid:142).

These experiments were conducted on Arabic-speaking learners of English, the first involving postgraduates within the context of a British university, the second involving undergraduates in the context of Kuwait University. It seemed essential to test the effect of the selected cohesive device (lexical repetition) on a population whose native language was already investigated for cohesive patterning. The choice of population, then, is linked with the focus of Chapter 3 which compares cohesive patterning in English and Arabic. it is emphasised that the scope of the experimental work undertaken,

and described here, is limited. Comprehensive experimental work of the full reportoire of cohesive devices native to Arabic and imported in the foreign language learning tests being left to future investigators.

It should be noted that experimenting on Arabic-speaking student is a deliberate decision. For I had been teaching at Kuwait University when this study was conducted. It could equally be conducted on native learners. Below is an account of the two experiments.

6.2 Experimental studies of cohesion

Two studies of reading comprehension were carried out, one on adult native speakers of Arabic carrying out postgraduate research at a British university, and one on undergraduate students of English at Kuwait University. The first population was used to focus on the question: Do ellipsis and substitution contribute to comprehension difficulty, and can full forms and repetitions render a text more comprehensible? The second population was used to answer the question: is the cohesion effect identical in different text types?

6.3 Experiment 1 : Hypothesis

That increased lexical repetition would render a text easier to understand.

6.3.1 Choice of text

An expository English text which has a scientific flavour was selected. Instances of ellipsis and substitution were increased in one version which was the control group text. In the experimental group almost all instances of some of the cohesive devices (eg.

pronominals, substitution and ellipsis) were replaced by lexical items, especially same items. This produced an Arabic-like text. Here is an example from the two versions of the same texts.

Control Text

The idea of a fish being able to generate electricity strong enough to light bulbs - or even run a small electric motor - is almost unbelievable. Several kinds are able to do so.

Experimental Text

The idea of a fish being able to generate electricity strong enough to light bulbs - or even run a small electric motor - is almost unbelievable. Several kinds of <u>fish are able to generate this amount of electricity to light bulbs or run a small electric motor.</u>

A set of 15 multiple-choice questions was devised to test comprehensibility of the micro-structures of the text. The questions for both groups (ie. control and experimental) were the same (see Appendix C).

6.3.2 <u>Subjects</u>

Ten Arabic-speaking postgraduate students from 3 Arabic speaking countries (Palestine, Syria and Iraq) underwent the experiment. These had already had between seven and eight years of compulsory English at school in their country of origin before joining Aston University. Some of the subjects were PhD students; having spent between two and five years of postgraduate academic study at Aston University. The ten students were researching in two different areas, engineering and chemistry.

6.3.3 <u>Procedure</u>

The subjects were randomly divided into two groups: a control group and an experimental group. 30 minutes were allocated to

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both groups to complete the text. Every subject was asked to read the text thoroughly and then circle the option which best answered the question or completed the sentence. The subjects were told that the purpose of the exercise was an experiment in reading. The total mark was out of 20.[1]

The results yielded by this experiment are spelled out below.

6.3.4 Results

The scores of the five subjects of each group are presented in the following table. They are arranged from highest to lowest, and are ordered in accordance with the students' level. That is the subjects who, for example, scored 16 in the control group and 20 in the experimental group were tentatively of equivalent level in terms of level and type of course they were doing (eg. both were PhD students in electrical engineering) and the period they spent in Britain.

control group	experimental group
16	20
15	20
10	18
6	18
2	17

Table 9: Scores of both groups of experiment 1.

Questions 4, 6, 7, 8 and 13 were given two marks each (see Appendix c).

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6.3.5 Discussion

The scores shown in Table 9 points to a significant difference in the performance of the experimental group. The experimental group students comprehended the `doctored´ text (ie. containing lexical repetition in place of ellipsis) significantly better than did the control group. This result offers an answer to the above question: ellipsis and substitution do contribute to comprehension difficulty. This difficulty can be said to have been counteracted by full forms and repetitions which are major characteristic cohesive properties of the subjects´ mother tongue (ie. Arabic). The present finding confirms the previous assumption by Menke (1981) that ESL learners can perform better if given orientation in the cohesive resources of English.

If it is the case that lexical repetition enables reader to more easily retrieve information from prior text, then this would suggest that anaphors identified in the text are easier to connect with ongoing information. It is probably the case, then, that given information which is introduced by a full form is easier and faster to process; and conversely, processing ellipsis and substitution is more demanding. This is exactly what would be expected, if as was argued in Chapter One, Section 1.2.3, the performance of parallel operations creates heavier processing load.

The present finding also confirms Berman´s (1984) suggestion: that for Arabic learners, lexical repetition, which is not only tolerated by their mother tongue but is also a preferred rhetorical device, eliminates the opacity of text resulting from instances of ellipsis and substitution. In other words, lexical repetition makes the text more transparent, and hence easier to

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comprehend.

This finding also accords with Tennant's (1981) conclusion that noun phrases would be easier to process than nominal ellipsis and substitution. Presumably, the memory search for connecting incoming with ongoing information is made easier when noun phrases which repeat explicit antecedents are used to introduce given information than when ellipsis and substitution are used for the same purpose.

6.4 Experiment 2 : Hypothesis: that the facilitatory effect of lexical repetition is operative in contrasting text-types.

6.4.1 Choice of texts

Three English texts, namely a fictional narrative text, an expository science text and an expository culturally-oriented text were selected for this experiment. This selection was twofold. One, it aimed to examine the possibility that narrative texts are easier to comprehend than expository texts. The second reason was to select three text types which differed in terms of content. Two are expository: the culturally-oriented text on `falconry´ and the science text on `electric fish´. However, each text addresses different content. The fictional narrative text describes a series of actions and their underlying motivation: `Annette´ attempts to `swing on the chandelier in the dining-room´. The scientific text on the ability of three kinds of fish (ie. electric rays, electric eel and electric catfish) to generate electricity is a straightforward piece of expository scientific prose. The culturally-oriented text addresses `falconry´ which is a famous hunting pastime in Arabia. The literary fictional narrative operates in the realm of imagined actions, and their purposes. Thus, the content of the three texts selected for the

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experiment is clearly different from one text to another.

Two versions of each text were produced. The control group version contained a number of instances of pronominal co-reference, substitution and ellipsis. In the experimental group text, on the other hand, these instances were replaced by lexical items. The following samples illustrate how the two versions of the fictional narrative text and the culturally-oriented text differ. It should be noted that the scientific text which was used for experiment 1 is the one used here.

a) Fictional Narrative Text

Control Text

There were two things which Annette had wanted very much to do since she arrived. One was to carve her name on a wooden bust by Grinling Gibbons.

Experimental Text

There were two things which Annette had wanted very much to do since she arrived. One of these things was to carve her name on a wooden bust by Grinling Gibbons.

b) Culturally-Oriented Text

Control Text

If it is on the ground, they dive at it.

Experimental Text

If the prey is on the ground, the falcon and the hawk dive at it.
(See Appendix C)

A set of 15 multiple-choice questions which aimed at testing the subjects' comprehension of the micro or specific details of text was devised for each text-type. The questions for both groups were the same (see Appendix C for texts and questions).

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6.4.2 Subjects

Ninety first year undergraduate students were tested, thirty on each text type. All subjects were first year undergraduate students of English language and literature at Kuwait University.

The reason why this particular sample was selected was that first year students represent a link between two distinct educational stages, high (ie. secondary) school and university, and would be less "contaminated" (in cultural terms) by exposure to Western education. In Kuwait, where the experiment was executed, students study English for eight years at school. First year students of English at Kuwait University have to pass satisfactorily three remedial courses in speech, reading and writing before they are permitted to specialise in English or transfer to other departments.

The population for this experiment represents 3 different nationalities all of whom had been educated for 8 years in the Kuwaiti school system, Palestinians, Egyptians and Kuwaitis. They all speak Arabic as a first language, and English to them is a foreign tongue.

When the experiment was carried out, the subjects had just started their remedial courses.

6.4.3 Procedure

As in the first experiment, the subjects were randomly divided into two groups: a control group and an experimental group. Each group consisted of 15 students for each text. The subjects were told that the tests were connected with research on reading which would contribute to the improvement of both the reading syllabus and their performance. Therefore, they were asked not to write their names, and hence the scores would not affect them. They were asked to

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read the text thoroughly and circle the option (a, b, c or do) which best answered the question.

The time allocated to complete the test was 30 minutes for all subjects. The total score was out of 15, the total number of questions (see Appendix C).

6.4.4 Results

The following table summarises the scores of the students on the three text-types, giving the frequency of each score in terms of number of students obtaining it. In the following table CG stands for Control Group; EG for Experimental Group; SC for Scores and ST for Number of Students

Narrative Text				Science Text				Culturally Oriented Text			
CG		EG		CG		EG		CG		EG	
SC	ST	SC	ST	SC	ST	SC	ST	SC	ST	SC	ST
11	3	15	4	9	3	15	1	10	3	14	2
10	2	14	3	8	3	13	4	9	1	13	7
8	4	13	5	7	4	12	4	8	1	12	2
7	1	12	3	6	3	11	2	7	3	11	4
6	3			5	1	10	3	6	5		
5	1			3	1	9	1	3	1		
3	1							1	1		

Table 12: Student's Scores in the Reading Experiment[1] in Control Group (CG) and Experimental Group (EG).

(1) The number indicated next to each grade represents the number of students who scored that grade. The first number 11-3, for example, means 3 students scored 11. In each case, the number of students is 15.

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The mean and standard deviation and the t value were computed on the basis of the above scores. The result is shown below.

	Narrative Texts		Science Texts		Culturally Oriented Texts	
	CG	EG	CG	EG	CG	EG
Mean	7.867	13.533	7.00	11.733	6.8	12.467
Sd:	2.416	1.125	1.698	1.58	2.513	1.06
t v:	8.235		8.035		8.05	

Table 13: Mean Scores, Standard deviation and t value of the students' scores in Control Group (CG) and Experimental Group (EC).

6.4.5 Discussion

The results of experiment 2 confirm those of experiment 1. The experimental group performed significantly better than the control group (significance level p > 0.1), which shows that eliminating ellipsis and substitution in favour of full forms and repetition does indeed have a facilitatory effect on comprehension. This effect is observed in all text types, and hence the hypothesis is confirmed.

Although the experiment did not set out to examine the relative difficulty of the 3 text types, it can be seen that the highest scores are associated with narrative texts. This confirms work by Britton and Graesser (1983) showing that narrative passages are easier to process and understand than expository texts. They

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suggest that readers are more familiar with narrative texts than expository texts (by virtue of amount of exposure from an early age); and degree of familiarity with "story-line descriptions" would go some way towards explaining the highest scores with narrative. It was not predicted that scores would be highest on the narrative text. Comparing the expository text (electric fish) with the culturally familiar text (falconry), it can be seen that the proximity of falconry to their world knowledge does not produce performance superior to that for the science text. The narrative text representing a story-line with culturally unfamiliar actions produces higher scores than the falconry text, with culturally familiar descriptions. This suggests that the reader's world knowledge and experience is less important than the more major difference of text type, ie. narrative vs expository prose, the former representing a more accessible model of communicating.

In comparing the results for the two kinds of expository prose (science vs culturally-oriented), some uncertainty arises. The control group does marginally better on the science text than on the falconry text, whereas the contrary is true for the experimental group. Further testing would be desirable to show conclusively whether "cultural familiarity" can be shown to differentiate performance in types of expository text.

Comparing the results for the science text in both experiments suggests that the postgraduate subjects of experiment 1 did better than the undergraduate subjects of experiment 2. This is not implausible since the postgraduate students were specialising in science, whereas the undergraduate ones were students of literature. Therefore, familiarity with the topic may have a facilitatory effect

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on text comprehension. Further confirmation of this assumption is needed. In addition, it can be assumed that long exposure to English in an English-speaking community may also positively affect the subjects' performance.

6.5 Pedagogical implications

In very general terms, the implication of the two experiments reported here is that English texts could be tailored to resemble the learners' language in terms of cohesive patterning. The `tailoring` could then be gradually diminished, so that ultimately the foreign reader will approach authentic English texts: authentic, that is, in terms of their cohesive properties. One source of the improvement of reading performance could involve instruction on the potential cohesive resources of English, as Menke (1981) suggests.

6.6 Summary and Conclusions

This chapter has presented the results of two experiments on reading comprehension. In the two experiments, one or more English texts were read by Arabic-speaking learners. In experiment 1 only one science text was read by 10 postgraduate students of science at Aston University. The experiment was intended to examine the cohesive effect of lexical repetition on text comprehension. The second experiment, which was undertaken by 90 undergraduate students of English at Kuwait University, tested that cohesive effect on the comprehension on three types of text.

The two experiments show that:

1. English texts can be made easier to comprehend by Arabic-speaking students if their cohesive patterning

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is altered to a more Arabic-like type, in which
ellipsis and substitution are replaced by full forms
and lexical repetition.

2. The facilitatory effect of using lexical repetition,
   rather than ellipsis and substitution, which is of
   particular significance for Arabic speakers, is
   maintained across 3 text types: literary fictional
   narrative, science prose and culturally-oriented prose.

3. The Arabic speaking readers tested perform better on
   narrative than on expository prose.

4. There is some uncertainty as to whether within
   expository prose, cultural distance/familiarity might
   be a significant factor affecting comprehension,
   conflicting results having been obtained in the control
   and the experimental group.

5. Predictably, postgraduate research students working in
   the British university context outperform the
   undergraduate population on the science text.
   Presumably, their greater experience of the general
   subject matter of science/engineering has made the
   content of the text in some way more accessible.

These findings accord with those of other researchers.
The fact that lexical repetition highlights the transparency of
English texts for Arab students is in line with Berman's (1984)
assumption mentioned above. The facilitatory cohesive effect of noun

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phrases when used to refer to specific antecedents conforms to Tennant´s (1981) in that full forms are easier to process than ellipsis and substitution. Finally, the fact that narrative texts are easier to comprehend than expository texts is in agreement with Britton and Gaesser´s (1983) finding in this respect.

Clearly, the scope of these two experiments is limited as stated in Section 6.0. Psycholinguistic experimental work is required on cohesive devices other than lexical repetition, and should ideally compare native with non-native speakers; and adults with children. The work described in this chapter is to be seen as an exercise in the type of work that could be developed.

Summary and Conclusions

7.1 Summary

This thesis has set out to explore the role of cohesion in the organization and processing of text. In other words, it has attempted to shed some light on the descriptive and explanatory apparatus for cohesion in text. Since cohesion is held here to be a variable rather than a homogeneous phenomenon which is dictated by text type among other factors, three text types have been selected. These include: literary fictional narrative, newspaper editorial and science. Trends in intra- and inter-sentential textual cohesion have been examined in those text types in English and Arabic. The role of cohesion in the processing of text has been partly accounted for by two small-scale studies which endeavoured to ascertain the impact of one cohesive device (ie. lexical repetition) on the comprehensibility of English texts by Arab learners. The results of the textual analysis and the experimental study are summarised below. For ease of reference, cross-text and cross-language results and the results of the pilot study are spelt out separately.

7.1.1 Cross-text type results

Except for the relative infrequency of comparative co-reference and substitution and ellipsis in the three text types, these text types have demonstrated significant differences in their use of other cohesive devices. These differences are outlined in what follows.

1. Fictional narratives tend to use pronominal co-reference significantly more than the other two text types do in both languages. This significant difference holds true for intra- and inter-sentential pronominal co-reference.

2. Inter-sentential demonstrative co-reference is significantly more frequent in the English editorials and science texts than in the English fictional narratives. In Arabic, on the other hand, the difference in this respect is not significant.

3. The additive conjunction `and´ is significantly more frequent between clauses in the English fictional narratives and between clauses and sentences in their Arabic counterparts than in the other two text types in each language.

4. English editorials and science employ IE significantly more frequently than English fictional narratives do. On the other hand, SRE is significantly more frequent in editorials and fictional narratives than in science texts. In Arabic, IE is significantly more frequent in science than in fiction. The difference between editorial and fiction in this respect is quite big but not significant. SRE is much more frequent in fiction and editorial than in science, but the difference is also insignificant.

5. Fictional narratives in both languages tend to utilize parallelism more frequently than editorials and science texts do.

6. Fictional narratives and science texts in English opt to previous themes or rhemes in successive sentences whereas editorials tend to use diverse themes which are semantically related. In Arabic, repetition of previous themes or rhemes is typical of the three text types.

7.1.2 Cross-language results

In fact, the distribution of those cohesive devices is almost identical in the two languages, but English and Arabic considerably differ in terms of the frequency of those devices. The cross-language differences in this concern are listed below.

1. Intra-sentential pronominal co-reference is significantly more frequent in the three Arabic text types.

2. Demonstrative co-reference across clauses and sentences is significantly more frequent in Arabic text types.

3. The additive conjunction `and´ and the causal `so´ is significantly more frequent across clauses and sentences in the Arabic texts.

4. Arabic tends to use lexical repetition much more frequently than English, whereas ´_· _SRE, ﻣﺮﺍﺩﻑ _ is more frequent in English, although the difference in both cases is insignificant, across sentences. At the intra-sentential level, lexical repetition and sRE·ﺉ- is significantly more frequent in the three Arabic text types.

5. Parallelism is significantly more frequent in the Arabic texts.

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6. As mentioned above, whereas in English, editorials use diverse themes across sentences, Arabic editorials tend to repeat same themes or rhemes.

7.1.3 Results of-experimental study

1. Lexical repetition has a facilitatory effect on the processing and comprehension of the three text types.

2. Lexical anaphors are easier to process and understand than ellipsis and substitution elements.

3. Fictional narratives are easier to process and understand than expository texts.

7.2 Conclusions

In the following discussion some speculative conclusions regarding the effect of global trends in textual cohesion on the organisation and processing of the three text types examined here are drawn.

The high frequency of pronominal co-reference in fictional narratives suggests that this device considerably contributes to their organisation and processing. Recurrence of pronominal co-reference which is mostly made up of third person pronouns and personal possessives in this corpus contributes to the connectivity and

continuity of the participant line and the event line which hold a narrative together (Gutwinski, 1976). Thus, this device can play an important role in the structuring of fictional narratives.

As for its role in the processing of fictional narratives, pronominal co-reference, as argued in Chapter 3, Section 3.4, has a light processing load which helps the reader to perceive the characters and actions of the story. Understanding a story hinges upon perception of characters and actions. In addition, long chains of pronouns keep the semantic identity of reference intact in successive sentences, which facilitates connecting new anaphors with previous antecedents. Pronominal co-reference can also contribute to the economy of text (de Beaugrande, 1980). This principle is crucial to efficient processing as de Beaugrande (1980) suggests. Thus, pronouns can be said to produce as a kind of trade-off between "compactness and rapid access" (ibid:151). As such, pronouns can help the reader to process large chunks of the text, the thing that speeds up reading and adds to the reader's entertainment. Thus, this global trend of pronominal co-reference meets with the readership, reader knowledge, reading style and pedagogical purpose of fictional narratives.

High frequency of lexical repetition in editorials and science suggests that this device greatly contributes to the creation of these two text types. Recurrence of semantically related items can ensure their surface connectivity and conceptual continuity. This lexical repetition seems to be dictated by the type of knowledge involved in each text type. However, whereas in science texts the technical concepts which normally have only one name (de Beaugrande,

1980) make it imperative that exact repetitions of same lexical items are unavoidable, the discursive nature of editorials sometimes calls for the use of diverse lexical elements, and hence the relative high frequency of SRE in them. But lexical repetition is still favoured more than SRE by both text types. Lexical repetition also appears to be in agreement with the author's motivation in editorials and science texts. In both text types, the author sets out to train the reader in concepts which require much specificity and clarity. Such an objective is best established by lexical forms rather than by pronominals which may blur the identity of reference.

Lexical cohesion can play a prominant role in the processing of editorials and science texts. Recurrence of same lexical items entails "sameness of reference" (de Beaugrande, 1980:135). This in turn, contributes to the principals of stability and economy of text. Keeping the semantic identity of reference alive in contiguous sentences helps readers locate appropriate antecedents easily and quickly. Consequently, processing new anaphors which repeat explicit antecedents would be efficiently carried out (Tennant, 1981; Sanford and Garrod, 1981, 1982). Moreover, the occurrence of same entities in adjacent sentences instigates a short memory search, the thing that expedites processing newly given information.

However, the dense informational load of editorials and science texts may make their processing much slower than that of fiction. A reader cannot process such a dense informational load in chunks but rather one step at a time. In fact this process is very much dictated by the writer who releases that informational load one step at a time. This slows down the pace of processing in editorials

and science texts.

That _SRE_ is more frequent in fiction and editorials suggests that these text types appeal to the reader's pragmatic world knowledge. For this reason, lexical collocation may be demanding on the processor's part. In order to connect anaphors with antecedents which are expressed by different lexical elements, the reader has to activate his world knowledge to create the necessary antecedent (Tennant, 1981). Thus, processing may be slowed down (Clark and Haviland, 1977).

The high frequency of the additive `and´ in fiction also has a bearing on the processing of this type of discourse. It was suggested in Chapter 3, Section 3.4 that the fluid nature of `and´ makes it highly predicted by the reader. Thus, a reader can easily process the conceptual relations expressed by `and´. Being familiar with `and´ in his speech, the reader does not have to exert a great cognitive effort to process the relations it effects.

The cross-language differences suggests that English and Arabic considerably differ in terms of their major cohesive properties. Generally, whereas English favours and derives much cohesion from textual economy, Arabic essentially coheres through textual redundancy. In English, high occurrence of one cohesive tie very much restricts that of another. For example, in the three English text types there is a kind of trade-off between pronominal co-reference and lexis in that when the former is high the latter is low and vice versa. These two devices normally occur concurrently in the Arabic text types. But it seems that a kind of trade-off takes place within the same text type in that while pronominal co-reference is

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dense across clauses lexis is high across sentences. This is particularly so in Arabic editorials and science texts. Thus, Arabic text types are not only redundant in terms of lexis but also in terms of pronominal co-reference. This is not unusual since Arabic verbs characteristically have implicit pronouns.

Moreover, redundancy in Arabic is also manifest in the high frequency of the additive `wa´ and the causal `fa´ which almost always occur across sentences and clauses. Therefore, whereas inter-sentential relations are mostly implicit in English, they are almost always explicit in Arabic.

Finally, parallelism plays an important role in the cohesion of Arabic discourse. Almost all Arabic text types tend to favour parallelism as an optimal rhetorical device which enhances the frequency of most cohesive ties. This is not the case in English where subordination is preferred to parallel co-ordinate clauses, especially in editorials and science. To conclude, Arabic discourse seems to be highly repetitive, additive and parallelistic.

The above characteristics can have a bearing on the processing of Arabic texts. Lexical repetition can keep the semantic identity of reference alive in successive sentences. Readers can therefore easily and rapidly connect new anaphors with prior antecedents. This in turn may facilitate integrating new information into memory. Besides, recurrence of pronominals across clauses can alleviate the typical information density of Arabic texts. Similarly, overt realisation of inter-sentential relations can help the reader process the configurations of knowledge across those sentences whose boundaries are far from being distinct. High frequency of `wa´ and `fa´ can also lessen the phonological and morphological complexity of

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Arabic texts. Finally, parallel clauses normally repeat similar points. Therefore, processing new information which repeats previous one is presumably easy and fast. By the same token, processing same themes which characteristically occur in adjacent clauses and sentences must be easy.

The above cross-language differences point to the fact that whereas English texts largely appeal to the reader's text-world knowledge, their Arabic counterparts appeal to the reader's text knowledge more heavily.

The results of the experimental study point to the facilitatory effect of lexical repetition which is typical of the learners' mother tongue on the understanding of English texts. The presence of lexical repetition renders the meaning of text transparent while heavy ellipsis and substitution make it rather opaque as Berman (1984) suggests. The experience of subjects seems to affect the processing and comprehension of text. The postgraduate students specialising in science processed and understood the science text better than the undergraduate students specialising in English did. The results also suggest that fictional narratives are easier to process and grasp than expository texts. Long exposure to narratives of different types and their being time ordered make this text type easier to process and comprehend (Britton and Graesser, 1983; Urquhart, 1984). These results point to two main things. One is that foreign learners need to be well acquainted with the potential resources of cohesion in English. Another is that they require longer exposure to different text types since expository discourse makes the largest bulk of the curriculum.

7.3 <u>Future research</u>

It was stated from the outset that this thesis cannot provide resolutions for all the issues raised here. Therefore, unresolved issues must be taken up by future research. It may prove useful to explore global cohesive trends in more text types and other languages. The facilitatory effect of each cohesive global trend on the processing of the respective text type may be worthwhile exploring. This facilitatory effect on the recall of text can also be tested. Other textual standards, as designated by de Beaugrande (1980), can be examined in different text types. The impact of these standards on the processing, comprehension and recall of different text types may as well be detected. If the effect of these standards was determined in English texts designed for foreign learners, the results would provide clues as to what kind of English texts are more adequate for the needs of those learners. Finally, future research can attest the validity of the speculative interpretations of the impact of major cohesive trends on the processing of different text types in English and Arabic given in Chapters 3, 4 and 5. If those cognitive interpretations were proved valid, cohesion could be said to have an explanatory power as it has a descriptive power. This issue which has been partly pinpointed here requires further verification so that the theoretical status of cohesion is fully established.

English Texts Analysed

N = Narrative
NE = Newspaper Editorials
S = Science

N 1. Foster `Where Angels Fear to Tread´

When the bewildered tourist alights at the station of Monteriano, he finds himself in the middle of the country. There are a few houses round the railway, and many more dotted over the plain and the slopes of the hills, but of a town, medieval or otherwise, not the slightest sign. He must take what is suitably termed a `legno´ - a piece of wood - and drive up eight miles of excellent road into the Middle Ages. For it is impossible, as well as sacriligious, to be as quick as Baedeker.

It was three in the afternoon when Philip left the realms of common sense. He was so weary with travelling that he had fallen asleep in the train. His fellow-passengers had the usual Italian gift of divination, and when Monteriano came they knew he wanted to go there, and dropped him out. His feet sank into the hot asphalt of the platform, and in a dream he watched the train depart, while the porter who ought to have been carrying his bag ran up the line playing touch-you-last with the guard. Alas! he was in no humour for Italy. Bargaining for a legno bored him utterly. The man asked six lire; and though Philip knew that for eight miles it should scarcely be more than four, yet he was about to give what he was asked, and so make the man discontented and unhappy for the rest of the day. He was saved from this social blunder by loud shouts, and looking up the road saw one cracking his whip and waving his reins and driving two horses furiously, and behind him there appeared the swaying figure of a woman, holding star-fish fashion on to anything she could touch. It was Miss Abbot, who had just received his letter from Milan announcing the time of his arrival, and had hurried down to meet him.

N 2. Naipaul `The Mimic Men´·

The sanctions my mother had invoked on the docks were not important. We were a haphazard, disordered and mixed society in which there could be nothing like damaging exclusion; and before the end of that first fortnight we had found ourselves attached to the neutral, fluid group which was to remain ours for the next five or six years. The men were professional, young, mainly Indian, with a couple of local whites and coloured; they had all studied abroad and married abroad; on Isabella they were linked less by their background and professional standing than by their expatriate and fantastically cosmopolitan wives or girl friends. Americans, singly and in pairs, were an added element. It was a group to whom the island was a setting; its activities and interests were no more than they seemed.   There were no complicating loyalties or depths; for everyone the past had been cut away. In that

fortnight we got to know as much about the group as there was to know; all that followed was repetition and ageing. But at the beginning we were dazzled. We had come to the island expecting the meanness and constriction of island life; we were dazzled, as by the sunlight itself, by the freedom which everyone who welcomed us proclaimed by his behaviour. The clothes! So light, so fresh, so prodigally changed. We were dazzled to be among the rich, to be considered of their number; and to get, from this, the conviction that in such a setting a comparable wealth would soon be ours as well. Austerity and prudence were forgotten. In that fortnight we spent! We gave as much as we received. We consumed quantities of champagne and caviar. It was part of the simplicity of our group; we loved champagne and caviar for the sake of the words alone.

N 3. Moorehead `The White Nile´

Obviously the problem of the Nile was never going to be cleared up by learned speculation in London. The answer could be found only in Africa itself, and now the chief hopes of the geographers were fixed upon Samuel Baker and his wife, who in March 1963, following their meeting with Speke and Grant, had set off south-wards from Gondokoro. It was known that Speke had confided to them the general position of the Luta Nzige, which was the possible second source of the Nile, and that they had decided to go in search of it.

Baker is a kind of fulcrum in African exploration. He stands in the centre of all theories, emotions, and moral attitudes, never deviating too far one way or the other. Without being in the least dull he is a practical, down-to-earth man, who knows precisely what he wants and where he is going to go. One feels with him that the fates are fighting an unequal battle; however outrageous the odds against him, things will calm down in the end and everyone will come round to his sober and sensible way of thinking. In some ways he is almost a caricature of the professional Victorian, the solid, whiskered clubman-figure who is absolutely fixed in his habits and his loyalties, but equally determined to enjoy himself. Yet he is a *difficult* man to define; having attached one label to him you find that you must quickly add another. Thus you might describe him as a splendid specimen of Thackeray's hunting-and-shooting Anglo-Indian nabobs, but then he writes extremely good books and is a very fair linguist; he is a prosperous member of the trading middle-class, but then he himself does not engage in business, he travels abroad on the most hazardous and daring journeys.

N 4. Huxley `Brave New World´

With eyes for the most part downcast and, if ever they lighted on a fellow creature, at once and furtively averted, Bernard hastened across the roof. He was like a man pursued, but pursued by enemies he does not wish to see, lest they should seem more hostile even than he had supposed, and he himself be made to feel guiltier and even more heplessly alone.

`That horrible Benito Hoover!´ And yet the man had meant well enough. Which only made it, in a way, much worse. Those who meant

well behaved in the same way as those who meant badly. Even Lenina was making him suffer. He remembered those weeks of timid indecision, during which he had looked and longed and despaired of ever having the courage to ask her. Dared he face the risk of being humuliated by a contemptuous refusal? But if she were to say yes, what rapture! Well, now she had said it and he was still wretched - wretched that she should have thought it such a perfect afternoon for Obstacle Golf, that she should have trotted away to join Henry Foster, that she should have found him funny for not wanting to talk of their most private affairs in public. Wretched, in a word because she had behaved as any healthy and virtuous English girl ought to behave and not in some other, abnormal extraordinary way.

He opened the door of his lock-up and called to a lounging couple of Delta-Minus attendants to come and push his machine out on to the roof. The hangars were staffed by a single Bokanovsky Group, and the men were twins, identically small, black, and hideous. Bernard gave his orders in the sharp, rather arrogant and even offensive tone of one who does not feel himself too secure in his superiority.

N 5. Drabble `Jerusalem the Golden´

Gabriel had known for some time before kissing Clara that he was about to kiss somebody. He was on the whole an honourable man, and had not kissed anyone except his wife since his marriage, save in the way of courtesy, so the act was for him a significant one. He was slightly uneasy about the lack of choice and the sense of desperation which had finally pushed him to it, but did not feel that they reflected ill upon Clara; he truly admired her, and the eagerness with which she had returned his onslaught had turned, through relief, his admiration into a kind of love. He had not expected to be so well received, for his vanity, once secure, had been steadily eroded by years of disastrous marriage, and having kissed her, having felt lips more hungry than cold, and a body that trembled with anticipation and not with apprehension, he felt himself to be made over again, to be a new man. He had forgotten the simplicity of such acts, and their lovely associations with the unfamiliar and the unexplored.

Clara seemed to him, in his ignorance, to be everything that Phillipa was not: warm, enthusiastic, easily amused, amusing, and wonderfully, mercifully unexhausted. She listened to everything and everyone, as though she could not hear enough, and her face was mobile and expressive; she smiled and frowned and concentrated in rapid, vivid succession, and her features never set into a civil parade of attention. When she was bored, she inspected, frankly, the furniture. And she wanted him; she had wanted him to ask her round for a drink. In his gratitude, he could have kissed her for that alone. Other girls had seemed to want him, but he had never put them to the test, being unwilling to face the slightest, most minimal coolness, being too unsure of his reception.

N 6. Fitzgerald `The Beautiful and Damned´

Gloria had lulled Anthony's mind to sleep. She, who seemed of all women the wisest and the finest, hung like a brilliant curtain across his doorways, shutting out the light of the sun. In those first years what he believed bore invariably the stamp of Gloria; he saw the sun always through the pattern of the curtain.

It was a sort of lassitude that brought them back to Marietta for another summer. Through a golden enervating spring they had loitered, restive and lazily extravagant, along the California coast, joining other parties intermittently and drifting from Pasadena to Coronado, from Coronado to Santa Barbara, with no purpose more apparent than Gloria's desire to dance by different music or catch some infinitesimal variant among the changing colours of the sea. Out of the Pacific there rose to greet them savage rocklands and equally barbaric hostelries built that at tea-time one might drowse into a languid wicker bazaar glorified by the polo customers of Southampton and Lake Forest and Newport and Palm Beach. And, as the waves met and splashed and glittered in the most placid of the bays, so they joined this group and that, and with them shifted stations, murmuring ever of those strange unsubstantial gaieties in wait just over the next green and fruitful valley.

A simple healthy leisure class it was - the best of the men not unpleasantly undergraduate - they seemed to be on a perpetual candidates list for some etherealized `Porcellian´ or `Skull and Bones´ extended out indefinitely into the world; the women, of more than average beauty, fragilely athletic, somewhat idiotic as hostesses but charming and infinitely decorative as guests. Sedately and gracefully they danced the steps of their selection in the balmy tea-hours, accomplishing with a certain dignity the movements so horribly burlesqued by clerk and chorus girl the country over.

N 7. Wolf `The Waves´

`I have won the game´, said Jinny.  `Now it is your turn. I must throw myself on the ground and pant. I am out of breath with running, with triumph. Everything in my body seems thinned out with running and triumph. My blood must be bright red, whipped up, slapping against my rib. My soles tingle, as if wine rings opened and shut in my feet. I see every blade of grass very clear. But the pulse drums so in my forehead, behind my eyes, that everything dances - the net, the grass; your faces leap like butterflies; the trees seem to jump up and down. There is nothing staid, nothing settled in this universe. All is rippling, .all is dancing, all is quickness and triumph. Only, when I have lain alone on the hard ground, watching you play your game, I begin to feel the wish to be singled out, to be summoned, to be called away by one person who comes to find me, who is attracted towards me, who cannot keep himself from me, but comes to where I sit on my gilt chair, with my frock billowing round me like a flower. And withdrawing into an alcove, sitting alone on a balcony we talk together.

`Now the tide sinks. Now the trees come to earth, the brisk waves that slap my ribs rock more gently, and my heart rides at anchor, like a sailing-boat whose sails slide slowly down to the white

deck. The game is over. We must go to tea now.´

<center>*</center>

`The boasting boys´, said Louis, ` have gone now in a vast team
to play cricket. They have driven off in their great brake, singing
in chorus. All their heads turn simultaneously at the corner by the
laurel bushes. Now they are boasting.

N 8. Lawrence `The Rainbow´

Tom Brangwen never loved his own son as he loved his step-child Anna.
When they told him it was a boy, he had a thrill of pleasure. He
liked the confirmation of fatherhood. It gave him satisfaction to
know he had a son. But he felt not very much outgoing to the baby
itself. He was its father, that was enough.
    He was glad that his wife was mother of his child. She was
serene, a little bit shadowy, as if she were transplanted. In the
birth of the child she seemed to lose connexion with her former self.
She became now really English, really Mrs Brangwen. Her vitality,
however, seemed lowered.
    She was still, to Brangwen, immeasurably beautiful. She was
still passionate, with a flame of being. But the flame was not robust
and present. Her eyes shone, her face glowed for him, but like some
flower opened in the shade, that could not bear the full light. She
loved the baby. But even this, with a sort of dimness, a faint
absence about her, a shadowiness even in her mother-love. When
Brangwen saw her nursing his child, happy, absorbed in it, a pain went
over him like a thin flame. For he perceived how he must subdue
himself in his approach to her. And he wanted again the robust,
mortal exchange of love and passion such as he had had at first with
her, at one time and another, when they were matched at their highest
intensity. This was the one experience for him now. And he wanted
it, always, with remorseless craving.
    She came to him again, with the same lifting of her mouth as had
driven him almost mad with trammelled passion at first. She came to
him again, and, his heart delirious in delight and readiness, he took
her.

N 9. Joyce `A Portrait of the Artist as a Young Man´

He turned away from her suddenly and set off across the strand. His
cheeks were aflame; his body was aglow; his limbs were trembling. On
and on and on he strode, far out over the sands, singing wildly to the
sea, crying to greet the advent of the life that had cried to him.
    Her image had passed into his soul for ever and no word had
broken the holy silence of his ecstasy. Her eyes had called him and
his soul had leaped at the call. To live, to err, to fall, to
triumph, to recreate life out of life! A wild angel had appeared to
him, the angel of mortal youth and beauty, an envoy from the fair
courts of life, to throw open before him in an instant of ecstasy the
gates of all the ways of error and glory. On and on and on and on!
    He halted suddenly and heard his heart in the silence. How far

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had he walked? What hour was it?

There was no human figure near him nor any sound borne to him over the air. But the tide was near the turn and already the day was on the wane. He turned landward and ran towards the shore and, running up the sloping beach, reckless of the sharp shingle, found a sandy nook amind a ring of tufted sandknolls and lay down there that the peace and silence of the evening might still the riot of his blood.

He felt above him the vast indifferent dome and the calm processes of the heavenly bodies; and the earth beneath him, the earth that had borne him, had taken him to her breast.

He closed his eyes in the languor of sleep. His eyelids trembled as if they felt the vast cyclic movement of the earth.

N 10. Green `The Power and the Glory´

He had been walking all day and he was very tired; he found a dry spot and sat down. When the lightning struck he could see the clearing. All around was the gentle noise of the dripping water. It was nearly like peace, but not quite. For peace you needed human company - his aloneness was like a threat of things to come. Suddenly he remembered - for no apparent reason - a day of rain at the American seminary, the glass windows of the library steamed over with the central heating, the tall shelves of sedate books, and a young man - a stranger from Tuscon - drawing his initials on the pane with his finger - that was peace. He looked at it from the outside: he couldn´t believe that he would ever again get in. He had made his own world, and this was it - the empty broken huts, the storm going by, and fear again - fear because he was not alone after all.

Somebody was moving outside, cautiously. The footsteps would come a little way and then stop. He waited apathetically, and the roof dripped behind him. He thought of the mestizo padding around the city, seeking a really cast-iron occasion for his betrayal. A face peered round the hut door at him and quickly withdrew - an old woman´s face, but you could never tell with Indians - she mightn´t have been more than twenty. He got up and went outside. She scampered back from before him in her heavy sack-like skirt, her black plaits swinging heavily. Apparently his loneliness was only to be broken by these evasive faces, creatures who looked as if they had come out of the Stone Age, who withdrew again quickly.

He was stirred by a sort of sullen anger - this one should not withdraw.

PEOPLE speak and write for and against `the Western alliance.´ But is
there any such thing as a Western alliance?

When NATO first came into being, Secretary of State Dean Acheson,
NATO´s architect, assured the relevant congressional committees that
the treaty did not commit the Unites States to any particular course
of action: the United States would decide in its own good time
whether, when, and how to do anything in support of the treaty.
Acheson had to give these assurances or Congress would not have
ratified the treaty.   So there is a treaty all right.   But what the
treaty may require, in any particular conjuncture remains a matter to
be decided by the leading signatory of the treaty, as far as its own
action, or inaction is concerned.

In public statements on the treaty relationship, this non-
committedness is generally carefully ignored, and often implicitly
denied.   Thus Mr Denis Healey, writing with the authority of a former
Defence Secretary, told the readers of <u>Fortune</u> in August 1980: `The
bedrock of allied security is the commitment of America´s strategic
nuclear forces to retaliation against the Soviet Union if it attacks
western Europe.´

Some bedrock!   Mr Healey assumes - note the word `strategic´ -
that the United States is not only prepared, but committed, to bring
down certain nuclear destruction on its own cities, by way of
responding to a Soviet incursion in Europe.   No Secretary of State
could have carried <u>that</u> version of NATO through congress, that´s for
sure.

It is true that Robert McNamara, as Kennedy´s Secretary of
Defence did make public statements which, if accepted as true, might
justify Mr Healey´s confidence.   The United States, according to Mr
McNamara in 1963, was prepared `to back up our commitments (in western
Europe) with our strategic nuclear power, no matter what degree of
damage might result, should the deterrent aspect of this policy fail.

Do we need the United Nations?   If it had not been around for 40
years, would the world now invent it?   Can a case be made, without
humbug, for an organisation that thrives on humbug?   The answer is
three times yes.

The UN Charter, which came into effect 40 years ago Thursday, did
not outlaw wars or create a world government.   It spoke instead of
establishing "conditions under which justice and respect   for
obligations arising from treaties and other sources of international
law can be maintained." The UN has improved conditions for ending or
containing violent quarrels between its members.   They may sometimes
scorn its appeals and spurn the good offices of the secretary-general,
as in the Iran-Iraq war.   But the record is otherwise in most flash-
fire conflicts.   Belligerents willing to be rescued can find face-
saving salvation in appeals by the Security council for cease-fires.

That was the case in successive Arab-Israeli wars, and in clashes
between India and Pakistan.   Without a United Nations, Turkey´s
invasion of Cyprus could have ended in a war with Greece instead of a
cold truce monitored by UN peacekeepers.   When swords are drawn, the

United Nations can blunt the edges of conflict and slow the rush to calamity.

It did so most memorably in the 1962 Cuban missile crisis, providing the open forum at which Soviet and American diplomats argued, as well as backstage facilities for vital soundings. When the secretary-general called on Moscow and Washington to avert a confrontation at sea, both found it expedient to comply. The shot that was not fired echoed around the world as a gasp of relief.

Those who deplore the United Nations because it provides a stage for nations hostile to the United States miss the point. The organisation's strength is its universality. It reflects the real world.

NE 3. The Guardian - 23/6/1983

The decision to raise mortage rates by 1.4 per cent points has left Mrs Thatcher "disappointed" and the Opposition parties crying "We told you so." So they did, for the signs of growing mortage queues were there aplenty. At some point, the building societies had to bow to the inevitable and move their interest rate structure back into line with the general drift upwards in interest rates over the past few months. The rise could have been even worse, with some people making out a respectable case for a 1.5 per cent point rise. Nevertheless, it seems likely that the easing in bank base rates will staunch any further pressure for a rise, at least in the immediate future. The real surprise, though, is that interest rates at these sort of levels are not causing far greater cries of anguish than they are. "Real" interest rates - the interest rates after allowing for inflation - look sharply higher than, say, they did when Sir Terence Beckett and his CBI brethren were promising a bare-knuckle fight. And it should be real rather than nominal interest rates which rationally influence decisions to stock or invest - or buy a home.

Part of the explanation for quiescence is that things are not all they seem to be. Home-owners, for example, have been protected from the steady rise in real interest rates (caused by stable or rising norminal rates with falling inflation) by their rising real incomes and their tax relief. Nor does the position for business look quite as harsh as the contrast between an interest rate of 9.4 per cent on three month Treasury bills and a rise in retail prices of only 3.7 per cent over the last year, while the prices of non-oil exports have increased by 9 per cent.

NE 4. Financial Times - 10/10/1983

SWITZERLAND will hold a general election on October 23, but the real upheaval in the country's government this year will be caused not by the voters, but by the passing of time. The electorate, almost beyond doubt, will confirm the four-party coalition in power since 1959. But two Ministers last week handed in their resignations, pleading age and their wish for a change after 10 years in office. The event is not unprecedented: 10 years ago as many as three vacancies needed to be filled on the seven-member Federal Council or Government. Yet to appreciate its import one needs to know that since 1848, when modern

Switzerland was founded, only 91 men (and no women) have served as Ministers.

The two men to go are M Georges-Andre Cheballaz, 67, a member of the Radical or Free Democratic party, who runs defence; and Herr Willi Ritschard, 64, a socialist in charge of finance. Losing them will not upset the Swiss potilical system, but their departure could leave a serious hole. Both men are popular, and it is an acknowledged weakness of Swiss public life that well-developed democratic machinery, complete with referendums on all matters of substance, has not prevented the political elite losing touch with the grass roots. Herr Ritschard especially appeared to be the exception to that rule. He was known for salty sayings and for a political pragmatism that often left him at loggerheads with his own party.

Sufficient evidence of the existing divide between electorate and elite is provided by the fact that the turnout at the last election in .1979 dipped below 50 per cent. As a rule even fewer voters bother to turn up for the referendums. This isolation of the leadership could, one day, become internationally embarrassing when a referendum is held on whether to join the United Nations. The majority of the political elite wants to go in.

NE 5. Financial Times - 25/10/1985

PRESIDENT REAGAN´S speech before the United Nations General Assembly yesterday is a profound let-down. Mr Mikhail Gorbachev has seized the high ground with his projection of a dynamic image, with the appearance of a willingness to engage in a new approach to East-West relations, and with his dramatic-sounding offer of radical cuts in nuclear weapons. These appearances of hope may turn out, when tested to be illusory. But the world, and especially the west, expected president Reagan to respond in kind, at least to regain the initiative. It has been disappointed.

As far as the world is concerned, the central issue for next month´s Regan-Gorbachev summit in Geneva is nuclear arms control, and in particular the Soviet proposal submitted to the on-going Geneva negotiations. Mr Reagan yesterday again welcomed these proposals which, he said, contained "seeds we should nurture." But he gave no clue as to how the U.S. would reply to them; more surprisingly, he did not even mention the proposals which Washington has had on the table for several years, which would also lead to deep cuts in nuclear weapons.

Since the Soviet proposals do contain constructive elements, there is no absolute reason why they should not be the basis of negotiation. But the outcome is likely to be less favourable for the U.S., and for the west as a whole, if they appear to be the only item on the agenda. President Reagan´s silence on the U.S. position, apart from a reiteration of the hopes he reposes in his Star Wars anti-missile defence programme strongly suggests that Washington has been too distracted and too divided to settle on a counter-offer of its own.

The most recent distraction has been the U.S. flip-flop over the 1972 Anti-Ballistic Missile (ABM) treaty, which severely restricts or bans testing or deployment of anti-missile defences.

Senator Edward M. Kennedy, Democrat of Massachusetts, a favourite foil of the Moral Majority in its crusade against liberals and big government, came to the bastion of the Rev. Jerry Falwell´s conservative fundamentalist empire to warn of the dangers of mixing religion and politics.

In remarks Monday night that his staff billed as his most significant since he spoke to the 1980 Democratic National Convention, Mr Kennedy advised that "people of conscience should be careful how they deal in the word of their Lord."

"I respectfully suggest," he said in a pointed reference to the lobbying efforts of the Moral Majority and other conservative groups, "that God has taken no position on the Department of Education - and that a balanced-budget constitutional amendment is a matter for economic analysis, not heavenly appeals."

Conservative groups favor abolishing the Department of Education and support a balanced-budget amendment to the Constitution.

Mr Kennedy said there is a temptation for men and women of faith "to misuse government in order to impose a value which they cannot persuade others to accept. But once we succumb to that temptation, we step onto a slippery slope where everyone´s freedom is at risk."

"The real transgression occurs when religion wants government to tell citizens how to live uniquely personal parts of their lives," he said, citing abortion and prohibition as examples where "the proper role of religion is to appeal to the conscience of the individual, not the coercive power of the state."

The senator homed in on several issues, including abortion, the Equal Rights Amendment and, most prominently, the nuclear freeze, all frequent targets of Mr. Falwell´s sermons and mailings to the three million members of the Moral Majority.

On the nuclear freeze, which he supports and whose supporters have been branded by Mr. Falwell as "freezeniks,"

With three months to go before the breakup of the American Telephone and Telegraph Co., Americans have little understanding of the reorganisation and considerable doubt about its benefits, according to a new York Times-CBS News Poll.

Only 29 percent of the respondents to the national survey said they had heard or read enough to understand what is going to happen in the divestiture, which takes effect Jan. 1 and which will change the way telephone service is provided.

Of those who said they did understand change, 41 percent said they thought it would make telephone service worse; only 25 percent said service would get better. Sixteen percent said service would remain the same and 18 percent did not know.

With the divestiture, different operating companies will supply local service and AT&T will face more competition in supplying long-distance service.

The breakup is expected to mean that local rates will go up, long-distance rates will continue to fall, customers may receive

multiple bills and the telephone-equipment market will become more competitive.

Nevertheless, 55 percent said they did not favor subsidizing local telephone rates so that everyone could afford to have a phone. Only 34 percent favoured such subsidies.

The survey of 1,587 people was taken in late September as Congress began work on legislation that would attempt to retain subsidies of local rates to maintain the 50-year-old policy of universal telephone service.

Gary L. Schmermund, division manager of public relations research for AT&T, said the result showing that people did not favor subsidies "certainly suggests to me that Congress doesn't have the support it thinks it does."

But Samuel A. Simon executive director of the Telecommunications Research and Action Center, a consumer group, said the question about subsidies would have been answered differently if people knew that local rates were now being subsidized.

NE 8. The Observer - 28/10/1984

TEN YEARS AGO next week Dr Henry Kissinger, then at the height of his powers as US Secretary of State, proclaimed `a bold objective: that within a decade no child will go to bed hungry´. Ten years on, those words spoken at the UN World Food Conference ring hollow indeed. As we watch the horrifying footage from Ethiopia, it is clear that another, darker prophecy - by C.P. Snow in 1969 - is being fulfilled. `Many millions of people in the poor countries are going to starve to death before our eyes,´ he said. `We will see them doing so on our television sets.´

This week´s film from Ethiopia is just the beginning. Most of Africa is heading into what the World Bank calls a `nightmare´ of famine and economic collapse. This year´s drought, the worst for 15 years, has yet to take its full toll, and next year´s harvest is expected to be even worse. Even this disaster is no more than a small downward turn in a steady decreasing trend. One-fifth less food is produced for every African now than in 1960, and if the trend continues the crop in 1988 will be no better than this year´s terrible harvest, even if the weather is good.

In the world as a whole there are twice as many hungry people as when Dr Kissinger spoke. Even in years of good crops, 15 million children die of malnutrition, a figure equivalent to the casualties of two Hiroshimas a week. And more than a third of the world´s land surface is being turned to desert through bad agricultural practice.

And yet, as Dr Kissinger noted in that illfated speech: `For the first time we have the technical capacity to free mankind from the scourge of hunger.´ More than enough is produced each year to feed everyone on earth. World food supplies are at record levels.

NE 9. Sunday Telegraph - 7/10/1984

In normal times the lastest dismal unemployment figures would have cast gloom over the Tory conference this week. As these are hardly normal times, they will to some extent be overshadowed by the more

immediate anxieties of the miners' strike and the memory of Labour's Blackpool antics; and in this way what should be a guarantee against complacency may prove ineffective. There is a danger here for the conservatives.

The general impression created by Labour at Blackpool was of a party unqualified for government, a party with an ineffectual leader at the mercy of a rising tide of extremism, a party frequently scornful of parliamentary democracy and happy to express distaste for the rule of law. It is almost inconceivable that such a party should be elected to office. Its defeats at the last two elections have evidently taught it, or a large section of it, not the humility proper to those who seek the public's trust, but contempt for the electorate and rage against "the system." It makes an unappetising spectacle and it is difficult to believe that all the arts of political cosmetics can render it otherwise in the eyes of the public.

But Governments lose elections as often as Oppositions, even good ones, win them. Hitherto the people have substantially backed the Government in its efforts to make the country able to hold its own in a ruthlessly competitive world: there has developed a sense that, as the scourge of inflation has been tamed, a new realism is prevailing. But already the waste and hatred engendered by the Scargill Strike have to some extent diminished that notion of a country struggling, under determined leadership, towards a healthier and more prosperous condition. The greater danger now is that the chilling prospect of the unemployment figures moving apparently inexorably upward will complete the disillusion.

NE 10. The Guardian - 19/10/1983

For the second time, Brent health authorities has voted to defy the government and refuse to implement some £250,000 of health service cuts with the loss of 110 jobs. In so doing , it has highlighted not only the inherent absurdity and unacceptable consequences of what the government is requiring it to do but also an ugly, new dictatorial strain in the health service which runs entirely counter to its traditions and to the declared policy of this government. Brent is a health authority which has tried hard to do the government's bidding in the past by making savings in its budget. So successful has it been in fact, that so far from breaching its cash limit it has money to spare. Yet the government is insisting nevertheless that it cuts manpower by 110 jobs and makes further savings of £250,000. Not surprisingly, the authority finally baulked at this instruction, which would pile upon the damage to Brent's health services the absurdity of cutting facilities when there was the money to pay for them, not to mention the intrusiveness of central government usurping the functions and duties of the authority.

But as if this wasn't bad enough, the behaviour of Brent's parent body, the North West Thames Regional Authority, was the last straw. The region's chairman, Dame Betty Patterson, wrote to authority members asking how they would vote and telling them that if they didn't support the cuts, she would sack them. So far from being bullied into submission, however, members were so infuriated by this threat that they sought a High Court ruling that Dame Betty had improperly exercised her statutory powers.

On Monday, however, the High Court ruled that Dame Betty had not exceeded her powers and that the regulations permitted her to act in this way.

S 1. G. Kenlay and K.W. Harris

Patterns are made slightly larger than the required casting, to allow
for the contraction of the molten metal that takes place on cooling.
Patterns are also invariably made in more than one piece, to
facilitate the removal of the pattern from the mould and help minimise
any damage to the mould that may be caused during this skilled
operation.
     The simple casting shown in Fig. 1.4 requires a two-piece split
pattern and a two-piece moulding box, sometimes called a
moulding flask. To prepare the mould required to produce such a
casting, half the pattern is placed on a turnover board and the bottom
half of the moulding box, called the drag, is positioned around it.
The half pattern is then covered with a facing sand - a special
mixture of sand and clay that will withstand the high temperatures
involved without breaking down and giving a poor surface to the
finished casting. The drag is then filled with green sand (a sand
containing moisture and clay), which is rammed up and levelled off.
The ramming allows the drag to be turned over without the sand falling
out. When this has been done, the top half of the moulding box,
called the cope, is placed on the drag and is aligned by means of
locating pins. The other half of the pattern is then located by its
dowels, and a dry layer of parting sand is sprinkled over the green-
sand surface to enable the two halves of the moulding box to be easily
separated. A similar procedure with facing sand and green sand is
then carried out.
     If a casting is required to have a hole or some other form of
internal cavity (as in the case shwon), then provision for a core must
be made. The core will require its own moulding box.

S 2. H.W. Roenthal

In the preceding paragraphs a reference was made to the collapse of a
structure as design data. Collapse may be due to many causes: it may
be partial, confined to certain building elements without affecting
the entire structure; it may be due to local overloading or vibration;
or it may be caused by very unusual circumstances, such as hurricane
wind forces which may only occur once in a century. Engineers are
already using their discretion when they assess certain loading
conditions and to give up the concept of the maximum permissible
firbre-stress as the only design criterion, wherever it might occur,
was the first step in this direction.
     The next step was to design beam and column sections on the
plastic basis, utilizing the entire section rather than only the
extreme fibres.
     The latest approach to design attempts to meet all the conditions
which can lead to the limit state, either in the form of collapse or
extreme strain (which in practice would lead to excessive deflection),
by codifying the loads and stresses which would lead to these limiting
states.
     Instead of laying down hard and fast values, the latest limit
state codes are based on statistics, for example, the frequencies of
certain windloads or variations in tests. These are called
characteristic loads, and are augmented by factors allowing for

possible deviations from such values. This leads to even higher local stress allowances called characteristic stresses, in certain situations reduced by certain safety factors and higher deflections for entire building types. So limit state design takes into account the structural behaviour of entire buildings and the interrelation of their elements.

Generally speaking the limit state approach represents a far more realistic attitude to structural design than the elastic theory, in which not only substantial parts of sections, but even whole parts of the building, remain understressed.

S 3. G.C. Bye.

All the major phases in commercial Portland cement clinker exist as multi-component solid solutions. Examples are numerous and both major and minor constituent elements are involved. In addition polymorphism (that is the existence of different crystalline forms or phases with the same nominal chemical composition) is exhibited by the silicates, for example, and the stability of polymorphs is influenced by relatively low levels of solid solution. Before giving a brief account of the structures of the clinker compounds, it is useful to recall the main features of solid solution relevant to cement.

The term solid solution does not encompass inclusions which are observed in clinker by optical microscopy, for example of C_2S in C_3S. It involves a distribution of the solute ions EITHER by substitution of them for those of the host (solvent) crystal structure OR by location of them at normally unoccupied or interstitial sites (Frenkel defects). These processes may also produce vacancies at normally occupied sites (Schottky defects) to maintain electroneutrality as, for example, when substitution of a cation M^{3+} for M^{2+} occurs.

The total defect concentration of a solid is made up of point defects (substitutional, Frenkel, Schottky) and line defects such as edge and screw dislocations and, apart from substitutional defects, they all exist in pure solids. The number of defects per unit volume of a solid depends on its chemical composition and the thermal and mechanical treatment it has received. The nature and concentration of defects is known to influence the chemical reactivity of a solid but the detailed study of defects in the crystals of cement clinker compounds is a relatively new one. Timashev (1980) reported Russian work in which micro-scopic observation of each pit density showed that one-third to half of the surface of C_3S and one-sixth to one-third of that of C_2S was occupied by dislocations.

Solid solution often produces a change in the unit cell size of a crystal lattice.

S 4. M.S. Goromosov

The area of the source of radiant heat is naturally of great importance; the larger the area, the greater is the sensation of heat.

The high sensitivity of the body to radiant heat is explained by the fact that, although human skin (irrespective of its colour) has a very high absorption coefficient in the infra-red region of the spectrum, nevertheless, a proportion of radiant heat passes through it

(Galanin, 1952); Malyseva, 1963). If the surroundings are at a low temperature, heat is lost, not only from the skin surface, but also directly from the deeper tissues, principally the muscles and blood vessels. At a low level of heat exchange, little radiant heat penetrates the skin and it has not appreciable physiological action, but the greater the proportion of heat exchange by radiation, the greater is the physiological effect. When heat exchange is very high, skin temperature is no longer the principal index of thermal comfort, because a proportion of the radiant heat penetrates the skin; in this situation, there is no longer a correlation between the skin temperature and the thermal condition of the individual.

It is important to remember that, when the body is cooled by radiation, the compensating increase in the metabolic rate develops much later than in the case of cooling by convention, with the result that, for a certain time, the body is no longer in thermal equilibrium (Slonim, 1952, 1961). In observations on human subjects under conditions of approximately equal cooling at a rate of 6-7 cal/sec, the heat loss, primarily from radiation, caused a reduction of 3°C in the temperature of the skin of the trunk, where it is usually comparatively stable. (With convection cooling at the same rate, there was no change in the skin temperature throughout an observation period of 1.5 hours.) Despite this marked fall in skin temperature and a clear subjective sensation of cold, there was no increase in the metabolic rate throughout the period of observation.

S 5. J.A. Harrison

Electricity is not itself a source of primary energy, but it is by far the most versatile and convenient form into which the primary energy of coal and oil, nuclear energy and the potential energy of stored water, can be transformed. Electricity can be converted into heat with 100 per cent efficiency and into mechanical motion with very high efficiency. This is done without producing any pollution or waste product of any kind. Electricity is also the only possible source of power for a wide range of electronic goods.

For any equipment, electricity generated in power stations is a much cheaper source of energy than primary batteries (dry cells). Secondary batteries offer a convenient way of making this energy available to portable equipment. If even better secondary batteries could be developed they would provide a very attractive way of powering small motor vehicles, particularly private cars. What is needed is a battery which is lighter, cheaper and longer lasting than present commercial batteries. The cost of running a car on electricity as compared with the cost of running it on petrol (gasoline), depends on the various efficiencies involved as well as the current prices of the fuels, but the cost of electricity to run a car is likely to be much less than the cost of petrol. There would be an additional advantage, if cars were charged overnight, in that the charging load would help to improve the power system load factor. The meaning of the system load factor is explained in Chapter 7.

In the USA a fairly large number of independent companies are responsible for generation, transmission and distribution of electricity, a notable exception being the Tennessee Valley Authority which is owned by the Federal Government. Although independent as

electricity undertakings, their power systems are interconnected and the Government maintains a certain amount of control over their activities.

S 6. NASA SP-5072

The existence of nitrogen oxides is determined by dye formation using the nitrite ion (NO_2-) as part of the reaction (ref.5). The sensitivity of this method ranges from a few parts per billion to about 5 ppm. Sample sizes up to .5 cubic foot produce sufficient color change for meaningful results. The analytical time is approximately 1 hour. Photometric readout is obtained, but no automated instruments have yet been developed for this procedure.

Oxidizing gases, such as ozone, are analysed by observing color change after absorption in potassium iodide (KI) (ref.6). The oxidants can be analyzed in the range of a few parts per hundred million to about 10 ppm. A sample size of approximately 2 cubic feet of air is suitable, and analytical time of up to 1 hour is required. The photometric readout produces analog data, but the overall procedure is manual.

Hydrogen fluoride (HF) and other volatile fluorides are analyzed colorimetrically after titration or spectrophotometrically (ref.7). Concentrations below 1/100 ug/cu ft. can be analyzed. An air sample size of approximately 10 cubic feet is the minimum and, in some cases, 100 cubic feet is required. Analytical time is approximately 7 hours because a detailed procedure is required to eliminate interferences that are caused by a large variety of materials. These are removed by double distillation with perchloric acid (HClO). Analog data are produced by the photometer or colorimeter, but the method is manual.

A number of materials including SO_2, nitrogen oxides, oxidants, chlorine (Cl_2) or chlorides, and fluorides or cyanides may be measured by modified wet-chemical procedures in a system of gas absorption followed by colorimetric analysis. Continuous analyzers using programed sampling values, proportioning pumps for reagent delivery, heating baths, distillation columns, temperature control, colorimeters, and so forth, can be purchased (ref.8). Sensitivities and sample sizes for these colorimetric instruments are equivalent to those given for the manual methods, and analytical time is of the same order as that for the manual methods.

S 7. E.W. Parkes

In all our work in Chapter 2 so far, we have assumed that the structures with which we were concerned were statically determinate. We must now investigate formally the conditions that this shall be so. As we have previously noted in $1.6, no structure is truly statically determinate, since this would imply no deformation under load, but many structures can be regarded as being statically determinate with sufficient accuracy for engineering purposes.

The first essential condition is geometrical: the shape of the framework must not change significantly throughout the range of its environment. Provided the changes of shape are small, we can still use the original angles when considering equilibrium at the joints; if

the changes in the angles are significant, the bar forces are dependent on the deformations and the framework is no longer statically determinate. Knowing whether the geometrical changes in a given framework are likely to be significant is largely a matter of experience, although once the bar forces have been determined it is always possible to check one's assumptions. For frames composed of well-conditioned triangles (angles $20^O - 140^O$) made of the usual structural materials (in which the direct strains under load do not exceed 0.5 per cent) the changes in geometry of the structure are not likely to cause significant errors in values of the bar forces determined by using the original geometry. If the structure is ill conditioned, or the material unusually extensible, it may be necessary to consider the effects of the changes in geometry more carefully (see Fig 9(c) and Example 9(i). An interesting means of determining whether a framework is ill conditioned is given by Mobius (1837). Remove one member (say AB) from a statically determinate framework. Then the resultant assembly is a mechanism. If the configuration of the mechanism is such that distance AB is a maximum or minimum, then for small movements of the mechanism distance AB will not change.

Ś 8.   Proceedings First European Congress on Biotechnology 1978, Col 1. 1982.

I consider biology a natural science. I consider biotechnology an engineering science. In my mind, the finality of biology as a natural science has been, and is, to arrive at a theory of living matter. The finality of biotechnology as an engineering science is to utilize living matter for producing or degrading large quantities of matter. Of course, both biologists and biotechnologists use techniques. But the biologist uses a technique for understanding a biological phenomenon, the biotechnologist for applying the phenomenon to an industrial and economic process.

A key factor in the distinction between biology and biotechnology is their scale. The biologist on his way towards understanding life works in the range between nanogram and miligram, perhaps. The biotechnologist working on the production of vaccines may be satisfied with milligram yields; but in most other projects, he aims at kilograms or tons. One of his main activities then, consists of scaling up biological processes. A typical technique of biotechnology is large scale culture of cells or organisms. In such cultures, ways must be found to make use of the enormous kinetic potential of biocatalysis.

In most of your cells and mine, enzymes convert substrates into products in amounts so small that sentitive fluorometric instruments are needed for their detection. When the biotechnologist decides to take advantage of biocatalysts he isolates enzymes from cells and processes them with the aim of converting substrates into products that can be weighed with a crude balance. The biologist engaged in the study of regulation of protein synthesis at the molecular level, in his work on the interaction of regulatory proteins and DNA observes effects so small, that he needs sensitive radionisotope techniques for following them. But the biotechnologist whose aim is to use particularly well suited bacteria for producing proteins would like to see amounts of product that can be loaded onto trucks or poured into

ocean-going ships.

S 9. K. Leech and B. Jordan

There is an old and very true saying that `prevention is better than cure´. Prevention means doing something about a difficulty before it becomes a problem. In medicine it means taking precautions or inoculation against contracting a disease. As a young child you were probably given vaccinations against smallpox and poliomyelitis and inoculations against diphtheria and tuberculosis. This is preventive medicine, ensuring that you will not suffer from a disease, by taking steps to prevent your having it. it is very much cheaper and better to prevent disease than to try and treat it after is has been contracted, because often unpleasant side effects arise alongside the main illness. For example weakening of the eyesight or even blindness, can accompany the common disease of measles. It is better, therefore, to prevent the person getting measles and so avoid the risk of being blind than to treat him after he has contracted measles. it is particularly relevant in mental illness because unlike, say, chickenpox which is over and done with in a few weeks, mental illness takes much longer to cure. So it is of utmost importance to prevent mental illness and one way of doing this is to deal with difficulties before they become burdensome problems.

Knowledge is a very good inoculation against things going wrong, especially against fear and confusion. As babies we thought that mother had gone forever every time she went out of the room, and we cried loudly in protest and fear at being left alone. As we grew a little older we gained the knowledge that mother came back again - and this prevented our fear when she left the room. As young children we all probably experienced fear of the dark, but when we could manage to turn on the light we lost our fear of the dark.

S 10. J.F. Crawford and P.G. Smith

The ability of free water to move within a landfill depends on a number of aspects. Intermediate cover placed between the layers of refuse may sometimes be capable of providing an aquiclude. However, uneven settlement in the landfill can cause fractures which would then give free water a pathway down into the lower layer.

A strategy for leachate control and treatment must be prepared. In some parts of the world, leachate from landfill sites is pumped to a municipal sewerage system and eventually passes through the sewage treatment works. The leachate may cause few additional problems in sewage treatment works apart from an increase in the total volume of liquid for treatment. However, if the municipal authorities refuse to accept leachate into the sewerage system or there is no sewerage system within easy access of the landfill site, then treatment proposals must be prepared, including an assessment of feasibility, performance and cost. Treatment of leachates is discussed in Chapter 6, but among the factors which will affect the choice of treatment are the quality of treatment desired by the operator, or desired by the governing agency (eg. a Central Government Department) and the nature and quantity of leachate produced.

In general terms, cost of leachate treatment tends to rise with the desired final reduction in the polluting attributes of the leachate. The evaluation of the cost of treating leachate may result in alternative proposals becoming more feasible. For example, a Class 2 site may be estimated to produce quantities of leachate of such a nature that serious groundwater pollution may occur. The cost of isolating the leachate and treating it to an acceptable standard may be so high that it becomes economical to provide a liner in the site and change its category to Class 1. Alternatively, where leachate treatment is expensive it may be cheaper to divert loads of less absorbent waste to other sites.

((بسم الله الرحمن الرحيم))

النصــــوص العربيـــــــة

* النصوص القصصية *

(١) طـــــه حســـــين :-

ولكن الشـهر مضى ،ورجع الأزهرى الى القاهرة ، وظلّ صاحبنا حيث هو كما هو ، لم يسافر الى الأزهـر ، ولم يتّخذ العمّة ، ولم يدخل في جبـــة أو قفطـان .

كان لا يزال صغيرا ، ولم يكن من اليسير ارساله الى القاهرة ،ولـــم يكن أخوه يحب أن يحتمله ، فأشار بأن يبقى حيث هو سنة أخرى ، فبقـــى ولم يحفل أحد برضاه أو غضبه .

على أن حياته تغيرت بعض الشيء° ، فقد أشار أخوه الأزهرى بأن يقضي هذه السنة في الاستعداد للأزهر ،ودفع اليه كتابين يحفظ أحدهما جملـة، ويستظهر من الآخر صحفا مختلفة .

فأما الكتاب الذى لم يكن بدّ من حفظه كله فألفيّة ابن مالك. وأمــــا الكتاب الآخر فمجموع المتون. وأوصى الأزهرى قبل سفره بأن يبدأ بحفـــظ الألفية ،حتى اذا فرغ منها وأتقنها اتقانا ، حفظ من الكتاب الآخر أشيـاء° غريبة ، بعضها يسمى الجوهرة ، وبعضها يسمّى الخريدة ، وبعضها يسمى السراجية ، وبعضها يسمى الرّحبيّة ،وبعضها يسمى لاميّة الأفعال . وكانـت هذه الأسماء° تقع من نفس الصبيّ مواقع تيه° واعجاب ،لأنه لا يفهم لها معنى، ولأنه يقدّر أنها تدلّ على العلم ، ولأنه يعلم أن أخاه الأزهرى قد حفظهــا وفهمها ، فأصبح عالما ، وظفر بهذه المكانة الممتازة في نفس أبويه واخوتـه وأهل القرية جميعا ، ألم يكونوا جميعا يتحدّثون بعودته قبل أن يعود بشهر، حتى اذا جاء° أقبلوا اليه فرحين مبتهجين متلطفين .

(٢) نجيب محفـــــوظ :-

تحركت السيارة تحمل في المقعد الأمامي رجب وسمارة وأحمد نصر على حين تكدس الباقون في المقعد الخلفي كجسد مفلطح ذى خمسة رؤوس .اتجهت نحو شارع الهرم في شبه خلاء° من المارة والسيارات ،واقترح رجب طريق سقارة مجالا للراحة فلاقى اقتراحه استحسانا ممن عرف الطريق ومن لم يعرفــــــه . أما أنيس فقبع في جلبابه صامتا وقد ضغط في جانب السيارة الأيمن . قطعـــوا

طريق الهرم في دقائق ثم انعطفنا نحو طريق سقارة وهناك انسابت السيارة في سرعة غير عادية في طريق مظلم مقفر ووضحت معالم الطريق بعض الشيء علــى ضوء السيارة ناذا به يمتد في الظلام بلا نهاية ، محفوفا من الجانبين بأشجار الجازورينا الضخمة تتلاقى أغصانها في الأعلى . ويكتنفه من الناحيتين فضـــاء ريفي المنظر والنسمة والوحشة يجلله الصمت ، ويشق جناحه الأيسر بطـــول الطريق ترعة قاتمة الوجه تتضح بعض سطوحها بلون رصاصي غامق مميز عما حولها تحت ضوء النجوم الخافت ، وازدادت السيارة سرعة وتدفق الهواء من النافــذة جانبا منعشا مشبعا باخلاط النباتات ، وقالت سنية كامل لرجب :

ـ مهدى‹ السرعــــة .

وقال خالد مـــــزوز :

ـ لا تجاوز السرعة اللائقة بمساطيل .

وسألته ســـــارة :

ـ أنت من هواة السرعــــة ؟

نحن نزور الآن قرافة فرعونية قديمة فلنقرأ الفاتحـــــة .

وسرعان ما استردت السيارة سرعتها الأولى فاقترح خالد أن يتوقفوا قليــلا ليتجولوا في الظلام . رحبوا جميعـا بالاقتراح نفضت السيارة تهدى‹ من سرعتها، ثم مال بهـم رجب الى رقعة متربة بين شجرتين .

الآن ، فقط ، عرف منشأ ذلك الشعور بالارتياح والاكتفاء الذى لم يكــن بوسعه ،قبل دقائق ،أن يكتشفه . انه ينفتح أمام عينيه بكل اتساعه وصفائـــه ، بل انه هدم ،بشكل رائع ، كل سدود الكآبة التي حالت بينه وبين معرفتـــه . وها هو الآن يتملكه من جديد بسطوة لا مثيل لها قط . كان أول شيء فعلـــه ذلك الصباح الباكر هو كتابة رسالة طويلة الى أمه . وانه يشعر الآن بمزيد مـن الارتياح لأنه كتب تلك الرسالة قبل أن تخيب آماله كلها في دكان الرجـــل السمين فيضيع صفاء الفرح الذى صبه في تلك الرسالة . لقد كان بدءـــا أن يعيش بعض ساعة مع أمه .

نهض باكرا جدا ذلك الصباح ،كان الخادم قد رفع السرير الى سطــح الفندق لأن النوم داخل الغرفة في مثل ذلك القيظ وتلك الرطوبة أمـــر مستحيل . وحينما أشرقت الشمس فتح عينيه . كان الجو رائعا وهادئا وكانت السماء ما زالت تبدو زرقاء تحوم فيها حمامات سود على علو منخفض ويسمع رفيـف أجنحتها كلما اقتربت ـ في دورتها الواسعة ـ من سماء الفندق .. كان الصمت

مطبقا بكثافة ، والجو يعبق برائحة رطوبة مبكرة صافية .. مد يده الى حقيبته الصغيرة الموضوعة تحت السرير فأخرج دفترا وقلما ومضى يكتب رسالة الى أمه وهو مستلق هناك .

كان ذلك أحسن ما فعله خلال شهور، لم يكن مجبرا على فعله ، ولكنه كان يريد ذلك بمل، رغبته وارادته .. كان مزاجه رائقا .

(٤) ‎ الطيب صالح :-

يولد الاطفال فيستقبلون الحياة بالصريخ ، هذا هو المعروف ، ولكن يروى أن الزين ، والعهدة على امه والنساء اللائي حضرن ولادتها ،أول ما مس الأرض ،انفجر ضاحكا ،وظل هكذا طول حياته ، كبر وليس في فمه غير سنين ،واحدة في فكه الأعلى والأخرى في فكه الاسفل،وأمه تقول ان فمه كان مليئا بأسنان بيضاء كاللؤلؤ . ولما كان في السادسة ذهبت به يوما لزيارة قريبات لها ، فمر عند مغيب الشمس على خرابة يشاع أنها مسكونة . ونجـــأة تسمر الزين مكانه وأخذ يرتجف كمن به حمى ثم صرخ ، وبعدها لزم الفــراش أياما ولما قام من مرضه كانت أسنانه جميعا قد سقطت ، الا واحدة في فكـه الأعلى ،وأخرى في فكه الاسفل .

كان وجه الزين مستطيلا ،ناتى، عظام الوجنتين والفكين وتحت العينين ، جبهته بارزة مستديرة ،عيناه صغيرتان محمرتان دائما ، تحجراهما غائران مثل كهفين في وجهه ،ولم يكن على وجهه شعر اطلاقا ،لم تكن له حواجب ولا أجفان ، وقد بلغ مبلغ الرجال وليست له لحية أو شارب .

تحت هذا الوجه رقبة طويلة . (من بين الالقاب التي اطلقها الصبيان على الزين " الزرافة ") . والرقبة تقف على كتفين قصيتين تنهدلان على بقية الجسم في شكل مثلث .الذراعان طويلتان كذراعي القرد .اليدان غليظتــان عليهما أصابع مسحوبة تنتهي بأظافر مستطيلة حادة (فالزين لا يقلم أظافـره أبدا) . الصدر مجوف ،والظهر محدودب قليلا ،والساقان رقيقتان طويلتـان كساقي الكركي .

(٥) ‎ يوسف ادريس :-

ذات عام كان عبد النبي افندى والست حرمه في مصر ، وكانت الدنيـا شتاء ،وعبد النبي افندى يمشي بجوار امرأته بجسده الذى هو طويل حقـا ولكنه ذلك النوع من الطول الذى لا يبدو وله عرض ،فلا سمنة تبرزه ، ولا أكتاف

مشوقة تنسيك رفعه ، وانما شيئان هاكمان مضمومان تتعلق عليهما سترته
كأنها معلقة على شماعة . ومع أنه كان يرتدى بدلة ،الا أنك كنت تستطيــع
أن تدرك للتو أنه لم يعتد ارتداءها ، فقد كان يخطر فيها وكأنه لا يـــزال
يخطر في الجبة والقفطان ، ويمد يده وكأنها لا زالت طليقة في الكم الواسـع
الهفهاف ، وكنت تستطيع أن تقسم أن نار المكوى لم تلسع بدلته منـــذ أن
وجدت وكذلك لا تقدر أن تخمن متى وجدت . ومع ذلك فالمحافظة علــــى
الملابس كانت في دم عبد النبي افندى ،ولهذا كان يضع منديله النص نـــم
الأبيض بين رقبته وبين ياقة سترته وحتى يمنع عنها العرق الذى ينضحه قفــاه
الأسمر ،وكذلك كان يفعل في طربوشه ،والغريب بعد هذا أن ياقة السترة ،
وحافة الطربوش ،كانتا دائما من أمتع الأمكنة التي يحلو للعرق والتراب البقــاء
فيها واستعمارها ..

وبالقياس الى وجه عبد النبي افندى الذى قدمت سحنته حتى اسـودت ،
وتناثرت تجاعيده في طيبة قبيحة ولكنها طيبة والسلام ، بالقياس الى وجهه ،
كان وجه امرأته الماشية بجواره حلوا أبيض فيه احمرار ، ليس هذا فقط ،بـــل
انها كانت ترتدى ثوبها الحرير الأحمر .

(٦) المقــــــــــاد :-

حملت القطيعة ولما تسفر الرقابة عن نتيجـــة .

حملت ولم يرد ها أحد ،ولم يكترث بها أحد ، كأنها مخلوق قائــــم
بمعزل من أبويه : تريد له بنيته المستقلة ما تريد ولا يريد لنفسه أو يريد لـــه
أبواه : يمرض وينحل ويموت وهو لا يريد الموت ولا يريده له القوامون عليه . بـل
كأنه الجنين الذى استوفى حمله فلا بد له من الظهور ولو ماتت أمه وانفطـــر
قلب أبيه .

أو لم يقل همام انه لن يفرط في هوى سارة ولن ينفصل عنها الا وهـــــو
وائق كل الوثوق من خيانتها ،وعاجز كل العجز عن صيانتها .

أو لم يقل أنها حلية مونقة أن غلت سومت بكنوز الأرض وذ خائر البحــار ،
وانَ رخصت هانت من السوام والصيان .

أو لم يقل ذلك ويعتزم العزم كله ويستجمع النية كلها على أن لا فــــراق
ولا قطيعة الا وقد عرف ما تساويه من قيمة وما تستحقه من غيرة وضنانـــة .

بلى ! قال كل ذلك ،ونوى كل ذلك ، ولكن الحب الذى أوحى اليه كـل
ذلك قد فسد وانحل ومات ، ولم يبق الا أن يدفن ! وان يحمله الى الدفـــن

أبواه ! وهما آخر من يود له الموت ، ويخف به الى ذلك المصير .

لو كانت المسألة قضية تنظر وحكما يصدر بعد نظرها لكان عجبا أن تثبت القطيعة قبل ثبوت الخيانة وأن تقع العقوبة قبل وضوح الجناية .

ولكن من هو القاضي هنا ؟ ومن الجاني ؟ ومن الفريسة ! ومن صاحـــب الفصل وشارع القانون ؟ .

بارح " عاشور أفندى " – أو بالحرى : " الشاويش عاشور " – داره فـــي الضحوة العالية ، تاركا بلدته " كفر الشمارته " ، ووجه وجهه ضيعة " الحـــــاج رمضان " ، وكانت الضيعة على مسيرة نصف ساعة من ذلك الكفر .

ومضى الرجل يقطع الطريق الترب الذى تتعاقب فيه الفجوات ، وهـــو مرفوع الهامة ، مبسوط القامة ، يضرب الأرض بخطوات متزنة ثقال ، هي خطـــا الشرطيّ الأصيل ، وشاربه الضخم المسنون الأطراف يهتز في خيلاء .

كانت شارة الشرطيّ وشياته تتجلى في كل مظهر من مظاهره ، وأن تخلت عنه تلك الحلة العسكرية ذات الشرائط المقصبة ، والأزرار النحاسية البراقة .. فقد أصبح حراما عليه أن يرتدى هذه الحلة منذ أشهر سلفت ، اذ أحيل الـــى التقاعد ، فاستبدل بها الجلباب الفضفاض المتهدل الكمين ، الكاشف عـــــن النحر ، يخبّ فيه خبّـا .

لقد استقبل " الشاويش عاشور " رسولا من " الحاج رمضان " يدعوه أن يزوره في ضيعته ، ولم يكن قد رآه قط ، وأن سمع به ، وعرف أكثر شأنه .. فالحـــــاج رمضان " فطريف من غطارفة الريف ، يمتلك ضيعة رحيبة الأرجاء ، تتيح لـــه أن يحيا في بسطة من العيش وسر ، وأنه لعظيم قومه ، لا يكاد يعلو عليــــه أحد من عشرائه وجيرته في الغنى والجاه ورفعة المقام ..

لم يكن في وسع " الشاويش عاشور " الا أن يستجيب لهذه الدعوة ، وأن كان في قراره نفسه لا يستجيب من طواعية ، وترحيب ، فقد استقر به المقام في مسقط رأسه " كفر الشمارته " وقد بنى عزمه على أن يمضي فيه ما كتب الله له من أيام .

لم يفت السلطان أن جوهرة غالية قد سقطت في القاهرة ـ تلك الجوهرة هي ابن خلدون وكان برقوق ذكيا ، بقدر ما كان قاتلا .. وكان من عاد قالملـــوك ، أن يطرزوا ثيابهم بالأحجار الكريمة ، كما كانوا يطرزون مجالسهم بالعلماء .

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وربط السلطان ،راتبا للعالم الجليل الذى أصبح الآن حديث القاهرة ،
وموضع أخبار مثقفيها .

وكانت أخبار حياته قد عبرت المسافة الشاسعة التي كانت تفصل المغرب
من مصر ،ووصلت الى ضفاف النيل ،قبل عيد الفطر من عام ٧٨٤ هـ ـ وهو اليوم
الذى نزل فيه ابن خلدون الى شاطىء الاسكندرية .

وعبرت الطريق الى مصر ،نسخة من مقدمة عبد الرحمن ،ما لبثت أن تعددت
صورها ،وانتشرت في القاهرة .

وفي القاهرة ،كانت ثمة مواضع للفجور وعشق الغلمان ،والرذيلة في أحط
صورها ..

وكانت في القاهرة مواضع أخرى ،طاهرة ، رفيعة ،منصرفة الى العلم ،
والفن . ومن المواضع الرفيعة ، كانت حجرة صغيرة قائمة بجوار زاوية في الحي
الحسيني يسكنها مجاورون خمسة هم : محمد السيوطي ،الذى وهبه أهله
للأزهر ،وكان أبوه فلاحا من الصعيد لا ينقه من دنياه ، الا أن الراحة لا يمكن
أن تتم على هذه الأرض وقد اقسم ـ حين ولد له محمد ـألا يكون مصيره كمصير
ابيه ، فما أن بلغ الطفل الثامنة ،حتى أسلمه لفلاحين ذاهبين بغلال الـى
القاهرة ليحملوه معهم الى الأزهر ،وهناك سوف تتولاه عناية الله ! .

وقد بلغ محمد ـعند مقدم عبد الرحمن بن خلدون ـ الثلاثين من عمره،
وأصبح شيخا وأصبحت له أنكار . وأما بقية هذه الجماعة من فقراء المجاورين فكانوا
عالما ضئيل الجسم مسدودا .

توثيــق الحكيــم :- (٩)

عذرى واضح كالنهار ،والخصال التي تدعو الى ذلك كثيرة ،وهي قائمة
معروفة ،من ذلك سرعة امتلاء البالوعة وما في تنقيتها من شدة المئونة .. ومن
ذلك أن الأقدام اذا كثرت ، كثر المشي على ظهور السطوح ،والصعود على
الدرج ، فينقشر الجص وينكسر العتب ،واذا كثر الدخول والخروج والفتح
والاغلاق وجذب بالأقفال ، تهشمت الأبواب ، وتقلعت الرزّات ،فساكن الدار
هو المتمتع بها ،والمنتفع بمرافقها ، وهو الذى يبلي جدتها ،ويذهب عمرها
بسوء تدبيره ،وانه ينسى أن المالك ما أسكن داره الا بعد أن كسحها ونظفها
لتحسن في عين المستأجر ، فاذا خرج هو ترك فيها مزبلة وخرابا لا تصلحه الا
النفقة الموجعة ، ثم لا يدع بعد ذلك مترسا الا سرقه ،ولا سلبا الا حمله ،
واذا أراد الدق في الهاون ترك الصخرة المجعولة لذلك ،ودق على الأجذاع

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حيث جلس ، تهاونا وقسوة وفشا .. هذا فضلا عما يحدثه من الشغب مـع الجيران ، والتعرض لهم ،واصطياد طيورهم ،وتعريضنا لشكايتهم . فـاذا أردنا أن نجعل الغرم بالغنم ،وأن نطلب بضعة دراهم لاصلاح الفســاد المنتظر سمعنا عبارات الاحتجاج وطولنا بابداء الأعذار والأسباب !. ...

وسكت "الكندى" فجأة ، فقد حانت منه التفاتة الى الضيفين ،فوجدهما قد انتهزا فرصة اشتغاله بالكلام ،وأمعنا هما في محو أثر الخبز والسمك ، الا " شبّروطة " كان قد نجح في وضعها بين يديه .

(١٠) مصطفـــى محمـــــود :ـ N.10

كان الرجل الهضيم الشاحب ذو الوجه الترابي يتلو هذه التعزيمـــة على البوتقة التي يضعها على النار ويمزج بها مقدار عشر قمحات من التوتيـا الحمراء بمثل وزنها من الالمونية ويضيف اليها (٢١) قمحة من الصابـــون النابلسي .. تماما كما ورد في كتاب" سحر الكهان في تحضير الجـان".. في باب صناعة الذهب .. وبعد كل تقليبة للمزيج كان يصرخ بأعلى صوتــه .. كريم .. جواد كهيعنصاد ...

ولنزيدك معرفة بالرجل نقول لك انه " محمد عبد المقصود الهـادى المهدى " ليس شيخا كما يتبادر الى الذهن .. ولكنه أفندى .. باشكاتـب في ارشيف وزارة الأوقاف .. رجل كالح البشرة .. ترابي اللون في لــون الدوسيهات المغبرة التي يكدس ها كل يوم على مكتبه عيناه جاحظتان علـــى الدوام .. سنه ٥٤ عاما .. ومع ذلك فهو يبدو في السبعين ربما بسبـب شعر لحيته الذى ينمو مرسلا بغير نظام .. وربما بسبب الهم والفقر وكثــرة العيال .. فهو اب لستة من العيال معظمهم مرضى أغلب أيام السنة ..

والذى نعرفه الآن من تاريخ حياته أنه منذ أكثر من ٢٥ سنة كـان طالبا نجيبا .. وأنه دخل كلية الحقوق .. وكانت له حينذاك أحلام عريضة في مستقبل باهر في المحاماة يشق به طريقه الى الاسم المرموق .

ولكنها كانت مجرد أحلام لم تعد أكثر من سنة اضطر بعدها أن يهجـر دراسته ليبحث عن عمل .. فأبوه الشيخ عبدالمقصود الهادى المهــــدى صاحب مكتبة المهدى بزقاق الصناديقية بالأزهر سقط مشلولا .. نزلت عليـــه النقطة كما يقول العوام فترك مكتبته .

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NE1

(١١) النهـــــــــــار :- ١٩٨٥/٩/٧م

لا تستطيع الولايات المتحدة الاعتراف بفشل مهمة مساعد وزير الخارجيــــة
لشؤون الشرق الاوسط السيد / ريتشارد مورفي ، فلا هي صاحبة اتفاق عمـــــان
ولا هي التي اقترحت اجراء حوار مع وفد اردني فلسطيني مشترك بل فشلــــــت
منذ فشل مشروع الرئيس رونالد ريغان للسلام وسقوط مبادرتها في لبنان ان تلزم
جانب التريث والانتظار والحذر والتردد فتظهر استعدادا للتجاوب مع التحركات
في المنطقة من اجل دفع مسيرة التسوية لكنها لا تقـدم على اى خطوة وقــــــد
رأى مسؤولون في الادارة الاميركية ان هذه السياسة نجحت في دفع الاطـــــراف
الاقليميين ولا سيما منهم المعنيين باتفاق عمان الى التحرك لذلك تنظر هــــذه
الادارة الان الى هؤلا وقد وقعوا في المأزق وبدأت اصابعهم وليست اصابعهــا
تقترب من النار فمصر تعاني ما تعاني والاردن ومنظمة التحرير لا يعرفان كيـف
يخرجان من اتفاق ١١ شباط او لا يعرفان مستقبل العلاقات بينهما في حـــــال
طي الاتفاق نهائيا ولا يعرفان كيف يعودان الى الاجتماع العربي بعد تعثـــــر
تجربة الاكثرية العربية او سياسة التفرد والانفراد كما يقول خصومهما .

واذا كانت السياسة الاميركية جنبت ادارة ريغان مزيدا من الفشل فـــــي
المنطقة فان اوساطا عدة في واشنطن وفي المنطقة تعتبر ان الاستمرار في هــذه
السياسة في هذه المرحلة بالذات قد تكون نتائجه سلبية ومضرة بالمصالح الاميركية
لذلك حذرت هذه الاوساط او تحذر من المضي في هذه اللامبالاة وترى ان على
واشنطن هذه المرة التحرك لانقاذ اصدقائها او حلفائها العرب الاسرائيليين
ومساعدتهم على تخطي ازماتهـــم .

NE2

(٢) النهـــــــــوار :- ١٩٨٥/٩/٧م

ليس في لبنان حرب واحدة حول شيء واحد لكي تكون هناك تسوية واحـــدة
او حتى هدنة واحدة فني بيروت وحدها ثلاث حروب معترف بها هي حرب خطوط
التماس وحرب المخيمات وحرب الحلفاء او ابناء الصف الواحد ولكل منها مؤتمــــر
خاص واتفاق خاص على انها القتال ولجنة تنسيق أو لجنة امنية خاصة وسر خـــاص
وديناميكية خاصة ولو ان هناك طرفا أو اكثر يشترك في الحروب الثلاث وخيطـــا
او اكثر يجمع بينها فضلا من الحروب الاخرى التي لا يعترف بها احد والـــــتي
قد تكون لها اتفاقات ولجان غيرمعلنة او التي لا اتفاقات حولها ولا لجان .

والواقع ان التصنيف التقليدى للحروب في الوطن الصغير الى حروب محلية واقليمية ودولية لم يعد يكفي لتفسير كل شئ ووضعه في اطارهالصحيح فلا الوجه المحلي من الحرب هو الان فقط الانقسام او الخلاف او الصراع الاهلي الدامي بين المسيحيين والمسلمين على النظام ولا الوجه الاقليمي هو فقط الصراع العربي الاسرائيلي ولا الوجه الدولي هو فقط التنافس الاميركي ـالسوفياتي مباشرة او من خلال الحلفاء الاقليميين ·

ذلك ان من الصعب العثور علىأننيجمع بين حرب طرابلس مثلاوبين الحرب على خطوط التماس في بيروت والجبل اذا كانت اللعبة الحقيقية هي اصلاح النظام او حتى تغييره مع الحفاظ على وحدة الارض والشعب كذلك الامر نسبة الى الحروب الاخرى داخل خطوط التماس ومن الصعب بناردكل ما جرى ويجرى في الجنوب الى الصراع العربي ·

وزراء الدفاع لحلف شمال الاطلسي اكدوا امس عزم البلدان الاعضاء فــي الحلف على نشر صواريخ امريكية في القاره الاوروبية ما لم تحقق محادثات جنيــف للحد من الاسلحة تقدما واضحا وزعماء الدول الصناعية الكبرى الذين اجتمعوا فــي وليمسبورغ اتفقوا على ان الامن الغربي واحد لا يتجزأ وفي هذا الاتفاق انتصــار واضح للرئيس ريغان الذى يرى ان الاتحاد السوفياتي يحاول الفصل بين الولايات المتحدة وحلفائها الاوروبيين،وبين الزعماء الغربيين من يعتقد ان الرئيــــس الاميركي غير راغب فعلا التوصل الى اتفاق مع الاتحاد السوفياتي في موضوع الاسلحة وان الاقتراحات التي يطرحها بين وقت وآخر وتعتبرها ادارته برنه انما تهدف الــى الحفاظ على تماسك الموقف الغربي من المحادثات اكثر مما تهدف الى تحقيــــق اتفاق مع السوفيات · وفي الادارة الاميركية من يعتقد ان وقت التوصل الى اتفــاق مع السوفيات لم يحن بعد وان التهديد بسباق التسلح يكون على الارجح منهكــا للسوفيات يجب ان يستمر · ويناخر الرئيس ريغان بانه منذ وصوله الى البيــت الابيض لم يسمح للاتحاد السوفياتي بمتابعة اندفاعته التي افادت من التــــردد الاميركي السابق واستغلته ·

في المقابل يكرر المسؤولون السوفيات ان نشر صواريخ امريكية في اوروبـــــا سيدفع الاتحاد السوفياتي الى نشر المزيد من الصواريخ ولا يبدو الاتحاد السوفياتي مستعدا لتقديم تنازلات للوصول الى اتفاق · فالزعيم السوفياتي اندروبوف القضى ورثها من سلفه برجينيف وضعا سوفياتيا صعبا في الشرق الاوسط ·

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من وقت لآخر تنطلق في وجوهنا وتسقط في آذاننا مقولة (آخر فرصة للسلام) دون ان يقول لنا احد لمن توجه هذه الكلمات أو ينطلق هذا التهديد . ولكــــن دعونا نتساءل في جدية وصدق : هل المراد تهديد الولايات المتحدة مثـــــلا ؟ فاذا كانت واشنطن هي المعنية بهذا التهديد فأن العرب يعرفون ويتجاهلــــون حقيقة ان الولايات المتحدة لا تعبأ ، في كثيرأو في قليل ، بالمقولات العربيـة وبالشعارات العربية وبالا نفجارات العربية . فالكلام الذى تسمعه واشنطن خلـف الابواب المغلقه هو غير هذا الكلام الذى نسمعه نحن . والانظارات العربيـــــة لا تعني بالنسبة لواشنطن شيئا لا نها تعرف ان العرب مثل (القدر البدوى) تسمع منه (الجعجعه) ولكنك ابدا لا ترى الطحين . ولان واشنطن ، وهذا هــــــــو الاهم ، ليس من هموسها الاولى أو الاخيره ان يسود السلام الحقيقي الارض العربية أو يجد الصراع العربى— الاسرائيلى نهاية جادة له ، فالولايات المتحدة ، كما قال السيد / خالد الحسن بالامس ، (تبحث عن الاستقرار لا من السلام) والفارق بين الاستقرار والسلام كبير لان الاستقرار يمكن ان يقوم على البطش وزوغان ميـــزا ن القوى ، اما السلام فيقوم على العدل أو الاستسلام ، وكلاهما مستحيل بالنسبـــة لامريكا . العدل مستحيل لانها لا تنظر الى القضية العربية بمفهوم العـــــدل او السمى الى تأكيد وجوده اما الاستسلام فهى تعرف انه قد يكون رغبة د فنينــــــه لدى البعض منا ولكنهالمستحيل الآخر .

برغم ان الحكومة المصرية الجديده لم تعلن رسميا الا ان هويتها حـــــددت وملامحها اتضحت واهدافها عرفت ، وبصرف النظر عن الاسماء المرشحة ، فـــأ ن الرسالة تعرف عادة من عنوانها ، وعنوان الحكومة الجديدة هـــــتو بأختصـــــار الدكتور على لطفى : ومهنته الاقتصاد .

وهذه الملامح تشير الى طبيعة مهمة الحكومة الجديدة ، اذ انها ليست لتصريف الاعمال بقدر ما هى لانجاز الاعمال . وقد تكون بداية لاعادة النظر بالوضــــع الاقتصادى برمته . ثم ان اعادة طرح الموضوع الاقتصادى ، لا يعني ان حكومـة السيد / كمال حسن على فشلت في طرحها الاقتصادى ومعالجاتها في هـــــذا الشأن ويكفي الاشارة الى ان الخطة الخمسية الاخير في مصـــر كانت اضخـــم انجاز اقتصادى — عمرانى بتاريخ مصر الحديث وهى التي استوعبت اكثر من الـف مليون جنيه وظفت في مشاريع انتاجيه شملت معظم المرافق وفي شتا الميادين .

وبرغم انجاز معظم الخطة الخمسية الطموحة ، فان الاقتصاد المصرى ظل يعاني من الاضطراب ،وان كان انتعاشه يتم ببطء شديد ، حيث الخطوات صعبة

وطلوبه للوصول الى مرحلة الازدهار . والسطور ستضيق حتما اذا عددنا اسباب عدم وصول
مصر الى الاستعداد للقفز من حالة العجز الى مراحل الاكتفاء والانتعاش .

والشهادات الاخيره لمؤسسات النقد العالمية ، ودوائر الاقتصاد الدولية ، بشأن
الاقتصاد المصرى وميزان المدفوعات ، كانت مشجعة بالفعل ومطمئنة في نفس الوقت ، لكن
المشكلات ظلت تتراكم طوال السنوات الاخيره .

(٦) الرئــــــاض :— ١٩٨٥/٩/١٠م

في صراع الامة العربية مع التحديات الداخلية والخارجية ، كان الانفعـــال
هو التصرف السريع ، حتى لو كانت الصدف تجعله في بعض الاحيان موقفا منتصـــرا
ولكن الاثار الخلفية كثيرا ما جعلتنا في مأزق لا نستطيع حل رموزه ، وهي المسألـــه
التي كانت منها الكثير من دول العالم حديثة الاستقلال في فترة الخمسينيات وماتلاها.
فالتعبير بالعنف ، وكسر قاعدة الاستسلام ، كما كنت تتصوره اكثر تلك الدول ،
كلفها خسائر مضاعفة ،حين تحولت العدوات والصداقات الى رايات ترفع كرمـــــز
للاستقلال والحيوية ، دون البحث من الارض التي تقف عليها حكومات تلك الشعوب
وكيف ان الاستقلال الحقيقي لا يعني بالتصرف الاحمق ولا باللجوء المطلق الـــى
الالتحام بتلك القوى دون معرفة الحقيقة التي تتعامل بها سياسة القوة امـــام
الأدنى منهــا .

على هذا النهج ، كان الاعتبار السائد في اوساط الامة العربية توزيـــــع
الصداقات والعداوات على مجمل المظاهرالتي نعتقد انها بعضنا ، أو ضدنــــا
في حين كان اولئك الاعداء يتقاسمون الكعكة الدولية من مفاهيم اكثر وضوحـــا
وتبرئة للتشنجات ، وهو ما وفر عدم اصطدام القوى مع بعضها ، الا ما عرف بالحرب
الباردة بين احلاف الشرق والغرب كنتيجة لعرض القوة امام الضعفاء .

خارج هذه الحمى الساخنة ، وتوزيع الادوار والزعامات ـ كانت دول الخليج
العربي تنمو في ظل امكاناتها ـ وتبحث من ضوء وسط الظلام الكبير ، مركزة علـــى
بناء شخصيتها دون افتراض للتحديات .

(٧) السيــاسـة :— ١٩٨٥/٩/٤م

ان دول مجلس التعاون الخليجي دول مليئة بالمصالح الدولية ، ولعـــل
اهم هذه المصالح هو النفط .

الى جانب ذلك فان هذه الدول تتجه الان نحو التكامل الاقتصـــــادى
وهذا يعني قيام صناعات مشتركة ، وارضيات استثمارية موحدة حددت معالمهـــا
عقلية خليجية واحــدة .

كل هذه الانجازات الموجودة منها والمفترض مضاف اليها الثروات النفطيـــــة الكامنة تحتاج الى سياج امني قوى يصونها ، ويحميها ، ويوفر لها اجواء الهــــدوء اللازمة للتطور والتقدم .

من هنا نقول ان انعقاد المؤتمر السادس عشر للمجلس الوزارى لدول مجلـــس التعاون الخليجي في الرياض ، الذى انهى اعماله أمس ، جاء هذه المرة انعقـــادا متميزا في اهميته خصوصا وان (موضوع الارهاب) كان من اولويات جدول اعماله .لماذا ؟

لان الارهاب سيظل ، وسيتكاثر وستزداد حدته ، وذلك بشهادات كبـــــار مسؤولي دول مجلس التعاون وفي مقدمتهم الشيخ صباح الاحمد الذى تحدث بأســـم الكويت في افتتاح أعمال المجلس الوزارى في الرياض اول امس مشيرا الى (اتساع نشـــاط الارهاب و تعدد اساليبه وتنوع وسائله واتخاذ منطقتنا مسرحا ليبث فيه الخراب) .

ونضيف نحن الى هذا الكلام كلاما آخر ، وهو ان الارهاب سينتشر ليس فقط في ساحات دول مجلس التعاون بل وفي ساحات العالم كله . لذلك يتحتم علـــــــى دول المجلس ان تستنبط انجع الوسائل لمكافحته او محاصرته او التخفيف من حـــــدة اعماله بدرجة مقبولة .

في فترة من الفترات استنفرت الامكانيات في المانيا الغربية لمكافحة الارهاب .

لا يختلف الوطنيون على طبيعة المعركة الدائرة في لبنان الان حيـــث تصطف القوى الوطنية اللبنانية والمقاومة الفلسطينية . كما كانت دائما فبنـــي خندق واحد : ليس ضد اليمين اللبناني فحسب ، بل ضد القوى الداعمة لـه وهي قوى صهيونية وامبريالية .

ومن الواضح ان قوى اليمين اللبناني ركبت الموجه الصهيونية والامبريالية والرجعية في محاولة لفتح لبنان امام الغزاة الاسرائيليين الذين (نصبوا   ) منهم اداة قمع ومذابح للقوى الوطنية اللبنانية الفلسطينية .

ومن الواضح ان قوى اليمين اللبناني لم تستطع حتى المحافظة علـــــــى معادلة (لا غالب ولا مغلوب) الا بحراب الامبرياليين والرجعيين ... هذه المعادلة التي تلغي على علاتها الواقع الد يموغرافي الوطني الطبقي في لبنان ومعادلة(لا غالب ولا مغلوب) معادلة خاطئة بالاساس لا نها تتجاهل رغبـة الشعب اللبناني بجماهيره الغفيره وانتماءات الوطنية والقومية والطبقية . ولقـد سقط المناضل كمال جنبلاط ضحية تغيير هذه المعادلة وبمعنى آخر تصحيـح المعادلة الوطنية اللبنانية لتلبي مصالح شعب لبنان وارتباطاته الطبقيــــــة والقومية بما تعبر عنه من تطلعات على صعيد المسألة الد يمقراطية لبنانيا وعلى صعيد التحالف الطبيعي مع المقاومة الفلسطينية .

ومن هنا لا يختلف الوطنيون على طبيعة المعركة الدائرة في لبنان من حيث انها تصب في الصراع الدائر لتحطيم ما اقامته الحراب الاسرائيلية الامبريالية في لبنان بنتيجة الغزو الاسرائيلي ، ولا يختلفون ايضا من حيث ان هذه المعركة تفتح لقوى المقاومة الفلسطينية الفرصة لشق طريقها من جديد الى ميدان قتالها .

(٩) أخبار اليـــــوم :- ١٩٨٥/٢/١٦م

اشاد التقرير السنوى لوزارة الخارجية الامريكية حول حقوق الانسان في العالـم خلال سنة ١٩٨٤م – بمصر ، باعتبارها احدى دول الشرق الاوسط التي تنعـــم شعوبها باحترام حقوق الانسان وكرامته . واضاف التقرير :(ان مصر جمهورية تمارس فيها السلطة السياسية المؤثرة بواسطة الرئيس حسني مبارك وحزب حاكم ومجموعة من نواب الاحزاب المعارضة الذين يشاركون بشكل كامل في مناقشات مجلس الشعـب الى جانب اعضاء الحزب الوطني الديمقراطي ، والذين ينتقدون سياسات الحكومـــة كما ان صحف المعارضة المصرية تمارس الآن حوارا حيا حول القضايا القومية ، وغالبـا ما تنتقد سياسات وشخصيات الحكومة بقسوة)

وما اكده . تقرير وزارة الخارجية الامريكية من احترام حقوق الانسان في مصـــر يشعر به كل مواطن في بلادنا ، ويسعد به ، ويحرض عليه . فحرية الفرد هي اثمـــن ما يملك ، واغلى ما يتمسك به حريته في ان يعلن رايه ، فلا ينكل به ولا يطرد مـــن وظيفته ، ولا يهدد في رزقه ،بسبب هذا الرأى الذى يغضب الحكام . حريته فـي ممارسة نشاطه السياسي ، فلا يضطهد و لا ينبذ ولا يحرم من موقعه ، ولا لشـــيء الا لان نشاطه السياسي يتعارض مع الحزب الحاكم . حريته في الانضمام الى الحـزب الذى يؤمن بأهدافه وبقياداته فلا يقبض عليه ويلقي به وراء الشمس اذا ما اختلفـت الحكومة مع هذا الحزب المعارض . وحريته في ان يكتب ما يراه محققا لأمال الشعـب ومعارضا لسياسات الحكومة .

(١٠) الشـــرق الاوســــط :-

اشار العاهل السعودى الملك فهد بن عبد العزيز في الكلمة التي القاهـــا مؤخرا امام مؤتمر الفقه الاسلامي المنعقد حاليا في مكة المكرمة ، الى الاوضاع الراهنة التي تشهدها الامة الاسلامية في فلسطين وافغانستان وقال ان ما اصاب الامـــة من ضعف ووهن ما كان ليصيبها لو انها تمسكت بهدى كتاب الله الكريم وسنة نبيـــه الهادى الامين .

واكد العاهل السعودى ان البداية السليمة لبناء وحدة الامة الاسلامية تتمثــل في نبذ الخلافات بين المسلمين وتصفيتها عملا بقوله تعالى (واعتصموا بحبل اللــه جميعا ولا تفرقـــوا) وحمل الملك بشده على روح التعصب ووصفها بأنها ابعـــد شيء من الاسلام حيث انها تكرس البغضاء والتفرق والتمزق الفكرى . لقد اصاب العاهل السعودى كبد الحقيقة اذا لفت الانظار الى خطورة روح التعصب . فالتعصـب الاعمى هو الذى ادى الى تلك الحرب الدامية بين شطرى باكستان واسفر من تحطيمها

الى شطرين . والتعصب الأعمى هو الذى سبب اراقة دماء عشرات الالاف من الاخوة المسلمين في الحرب التي تدور رحاها منذ ٤٣ شهرا بين ايران والعراق .

والتعصب الأعمى هو في الحقيقة شر البلية وهو الذى يعقد كل خلاف بسيـــط حتى يصبح مشكلة مستعصية .

هذا وقد اشار العاهل السعودى الى مشكلة اخرى خطيره . اذ قال (اننــــا نلاحـــظ ان تفرق المسلمين قد ادى الى تورع العلماء عن مواجهة الكثير مما جد مـن مشكلات الحياة برأى يجتمع عليه علماء المسلمين لذا تراكمت المشكلات بالرغم من وفـــرة العلماء والفقهاء المجتهدين .

S1

١ ـ   ابراهيم نجيب محمود : ـ

يجب أن يعنى بالطلائق عناية خاصة فتوضع في بوكسات من حجـــرات مغلقة تدخلها الشمس ويتخللها الهواء وتفتح من ناحية على أجـــواش متسعة مكشوفة ظليلة ، ويكون للطلائق فيها حرية الحركة والانتقــال من موضع الى آخر ، وتفرش أرض البوكسات بقش الأرز فلا تتأثـــر مفاصلها وأقدامها من صلابة الأرض ، ويقدم لها غذاء سهل الهضـم غني بالفيتامينات والأملاح المعدنية ، ويعنى برياضتها اليومية كل صباح ومساء ، كما يعنى بتقليم أظلافها في دورات شهرية منتظمـــة والحذر من بلل الأظلاف والا فانها اذا سارت بعد البلل على الأرض الصلبة أو الرمل فان الأظلاف تلين وتتآكل وتصاب بالحفا والنواسير ، لذلك يجب أن تكون الأظلاف على الدوام جافة وأن تنظف وتدهن بالقطـران مابين وقت وآخر .

ويجب أن لايزيد عدد الوثبات الطبيعية التي يقوم بها الطلوقـــة كل موسم تناسلي على ثمانين وثبة ، ويمكن بالتلقيح الصناعي اخصــاب أضعاف أضعاف هذا العدد بأقل عدد من الدفقات المنوية فلا تتعرض الطلائق للاجهاد الجنسي ،بل تظل على الدوام محتفظة بنشاطهـــا الجنسي سنوات عديدة .

ويستطيع الطلوقة أن يبدأ حياته التناسلية عندما يبلغ عمره عاما ونصف عام ، أو حتى قبل ذلك بعدة أسابيع ،والطلائق التي تستعمل للتلقيح الطبيعي لايجب أن تستعمل للتلقيح الصناعي حتى لا تتعرض الحيوانات الملقحة صناعيا للأمراض التناسلية .

ويجب أن يعنى بفحص الطلائق .

يتم البلوغ عند البنات بظهور الطمث وتكوّن الصفات المميزة للجنــــس
يبتدى عادة عند المصريات في السنة الثانية عشرة الى الرابعـــــــة
عشرة ، وقد يظهر في السنة الحادية عشرة وبندر قبل ذلـــــك .
وكل ما ابتعدنا الى الممالك الشمالية كلما تأخر البلوغ اذ يكــــــون
في القطب الشمالي في حوال سن ٢٢ سنه .

وقبل ظهور الطمث تحدث عدة تغيرات في المجموع العصبي والنفساني
والجسماني للبنت ، فيبتدئ الحياء عندها ويقل اختلاطها بالصبيان
وتتملكها الوداعة النسائية ،وتعمّ هذه التغيرات كل أخلاقهـــــــــا
وطبائعها ، وفي هذه السن تجب ملاحظة الفتاة بكل تدقيـــــــق
اذ كثيرا ما تنتابها الأمراض العصبية والهستيرية في غضون هــــذه
التغيرات النفسانية ، وأما شكل جسمها فيأخذ في التغير ليتحــول
تدريجا الى شكل المرأة النهائي ، وأول ما يلاحظ ظهوره هو نمــو
الشعر في الابطين وعلى جبل الزهرة ، وكبر الثديين واستدارتهمـا
وبعد ذلك بقليل تحدث ارتشاحات شحمية في بعض اجزاء الجســـم
فتسمن الاليتان والفخذان وجبل الزهرة والثديان والكتفان والعنـــق
ويكون ثمت ميل عام للاستدارة والسمن في كل أجزاء الجســــــم .
زد على ذلك أنه يحدث أيضا نمو ظاهر في أعضاء التناسل فيكبر الرحم
ويأخذ شكله البلوغي ، أى أن الجسم يكبر حتى يصير أطول من العنـق
ويبتدئ ظهور حويصلات جراف في المبيضين ، ويظهر أن ظاهــــــرة
التبويض قد تحدث قبل ظهور الطمث .

ثبت الحشرة في حوض التشريح على الجهة البطنية كالمعتاد وافتح من
على جانبيها وأنزع الترجات كما فعلت المرات السابقة ارفع بالملقـــــط
الجهاز الهضمي واقطعه بالمقص من مبدئه عند المرئ ومن نهايتـــــه
عند المستقيم ، انظر لتجد أن الفراغ الحشوى للحشرة يغطيـــــــه
من السطح السفلي غشاء رقيق مرسبة عليه مواد دهنية ، هذا الغشاء
هو الحجاب الحاجز السفلي ، انزع هذا الغشاء من الجوانب باحتراس
وانظر في الخط الوسطي للحشرة تجد الحبل العصبي البطــــــــني

" Ventral nerve cord "

تتبع هذا الحبل العصبي من الخلف للأمام لأنه يسهل العثور عليـــــه
في منطقة البطن القليلة العضلات .

نظف الأجسام الد هنية التي حول وأسفل الحبل العصبي برفق واحتراس شديدين وذلك بوضع ابرة تشريح تحته ورفع جزء منه ثم بملقط منحنـــي الطرف أو بأبرة تشريح أخرى نظف أسفل موضعه من الأجسام الد هنيـة البيضاء حتى يصبح أسفل ا لحبل العصبي والعقد العصبية أسمـــر اللون (وهو لون أستربنات الجسم) ، وعند ئذ لاحظ الحبـــل العصبي مكون من زوج من الأحبال العصبية الرفيعة ذ ات لون ابيض شفاف يميـل للزرقة الخفيفة ، وتجد أنه يوجد على مسافات مختلفة من هـــذا الحبل العصبي المزدوج عقد عصبية يكون حجمها هنا في البطـــن صغير ، تخرج من هذه العقد أعصاب جانبيةتمـد المنطقة الموجـودة فيها هذه العقد بالأعصاب يبلغ عد د هذه العقد البطنية ســــتة لاحظ كذلك أن العقد العضلية البطنية الأخيرة كبيرة نوعــــا .

- ٤   صلاح الدين الأشـــــــرم : -   S4

ويلاحظ أن الشحنات السالبة الموجودة على الأليكترونات المداريـــة مساوية في مجموعها للشحنات الموجبة الموجودة على البروتونـــــات داخل النواة ، وبذلك يحصل بينهما تعاد ل ولا تظهر أى قـــــوة كهربائية خارج الذرة ، وعد د الشحنات السالبة الموجودة خـــــارج النواة تساوى تماما عد د الشحنات الموجودة في النواة ، وقد رتبت العناصر حسب عد د الاليكترونات المدارية في الذرة من (١ -الى ٩٢) فـــي جد ول عام يسمى الترتيب الد ورى للعناصر .

وتحتوى كافة الذرات عد ا الهيد روجين على نيوترونات ، فمثلا تحتـــوى ذرة الهليوم على ٢ نيوترون ، وتحتوى نواة ذرة اليورانيوم على (١٤٦) نيوترون ولا يحمل النيوترون أية شحنة .

وبالرغم من تساوى عد د البروتونات في ذرات العنصر الواحد الا أن بعض ذرات هذا العنصر قد يحتوى على أعداد مختلفة من النيوترونـــات وبذلك تختلف في أوزانها الذرية ،فمثلا وجد ثلاثة أنواع مـــن ذرات الهيد روجين ، يكون عد د ها الذرى واحد أى أن عد د البروتونـــات متساو وهو بروتون واحد .

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أما النوع الاول وهو النوع المعروف من الهيدروجين فلا يوجـــــــد في نواة ذرته غير هذا البروتون ولا توجد معه نيوترونـــــــات وهناك نوع ثان من الهيدروجين وزنه الذرى / ٢ / وتحتوى نـــواة ذرته على بروتون واحد ونيوترون واحد `، ونوع ثالث من الهيدروجين وزنه الذرى ( ٣ ) وتحتوى نواته على بروتون واحد ونيوترونيـــن ، وبالرغم من أن الأنواع الثلاثة مختلفة في أوزانها الذرية الا `أنهـــا متشابهة في كل الخواص الأخرى للهيدروجين .

ويطلق على الذرات المختلفة لنفس العنصر بالنظائـــــــــــر (ISOTPES) وقد استطاع العلماء انتاج نظائـــر صناعيــــــــة .

S5 ──   منظمة الأقطار العربية المصدرة للبترول : ─

تتميز وحدات انتاج المنتجات البتروكيماوية عادة بضخامة الانتـاج حتى تصبح اقتصادية ، وكثيرا ما يحدد حد أدنى للانتاج الاقتصـــادى للوحدة .

ويمكن تقسيم المنتجات البتروكيماوية التي تنتج من الغاز ومقطـــرات البترول الى ثلاث مجموعات : ─

١ ─   مجموعة الاوليفينات والاسيتيلين ومشتقاتها .
٢ ─   مجموعة العطريات ومشـــــتقاتهــا .
٣ ─   مجموعات المركبات غير العضوية مثل الأمونيا وأســـــود الكربـــــون .

ويجب أن يشار هنا الى أن هذه الصناعة تعتبر من أحدث الصناعات اذ لم تبدأ في الولايات المتحدة الا `في العشرينات باسـتخدام البروبيلين الناتج من عمليات التكسير لانتاج بنزين السيارات وذلك بتصنيع كحول الايزوبروبيل .

وقد جرى التوسع الكبير في هذه الصناعة بعد الحرب العالميـــــــة الثانية لشدة الطلب على الكيماويات وخاصة أن مصادرها التقليديـــة مثل الفحم وكربيد الكالسيوم كانت محدودة اذا ما قورنت بالبتـــــرول الذى يتميز بسهولة نقله وقلة نسبة الشوائب فيه وانخفاض ســـــعره وضخامة أرصدته ، هذا الى توفر الغازات الطبيعة وترتب على هـــذه المزايا ان تطورت كيماء الاوليفينات والعطريات والأمونيا تطـــــورا سريعا لتعطي آلاف المنتجات الجديدة التي زادت الحاجة اليهــا زيادة مضطردة وخاصة في انتاج مواد البلاستك والألياف الصناعيـــة والمطاط الصناعي والمنظفات الصناعية .... الخ

كذلك يلاحظ التطور السريع في عدد المنتجات البتروكيماويـــــة بحيث أصبحت طرق الانتاج تتقادم بغاية السرعة وحل الأثيلين محل الاسيتيلين في كثير من المنتجات ، وقد أدى التنافس العنيف بين شركات الانتاج العالميـة الى تطوير طرق جديدة للانتاج ووحدات اكفأ تساعدها على تخفيض تكاليـــف الانتــــــــاج .

وفي هذه الحالة فانه يجب اتباع أساليب خاصة في الزراعة والرى للتغلب على هذه الظاهرة ولقد وجد أن بعض الادماج حول الجذور يساعدها على الاستفادة من العناصر الغذائية والأسمدة السابق اضافتهـــــا ، وفسر ذلك على أساس تحسين الاتصال بين الجذور والمحلول الأرضى . هذا وقد يمكن تلافى التأثير الضار لاندماج الأرض على نمو الجذور بخدمتها عند درجة رطوبة مناسبة وحرث هذه الطبقات المدمجة أو تكسيـــــرها واستخدام نباتات ذات مجموع جذرى شعرى كسماد أخضر ، وقـــد يفيـد تعريض مثل هذه الأراضى لدورات من الابتلال والجفاف لتحسين خواصها . الخصوبه Fertility

تؤثر الخصوبة وموقف العناصر الغذائية بالأرض في نمو الجذور كما تؤثر في نمو اجزاء النبات الأخرى ، ويؤدى ضعف الخصوبة في الطبقــــــات السطحية الى عدم قدرة الجذور على التعمق حتى وان سمحت الظروف الطبيعية الأخرى بذلك ، كما يؤدى التسميد في مثل هذه الحالة الى رفع مقدرة الجذور التعمقيه وبالتالى استفادتها من المصادر المائيـــة والغذائية المتاحة بالقطاع ، ويمكن للنباتات المعتنى بتسميدهـا التغلب على الظروف السيئة لنموها بالقطاع كاندماج الأرض اذ أمكـــن لها اختراق مثل هذه الطبقات مع زيادة الخصوبة .

ومن حيث استجابة نمو المجموع الجذرى للعناصر الغذائية المختلفــــة فلم ينفصل ذلك ما يستحقه من الدراسة علاوة على التضارب في الآراء ، وعموما فان المجموع الخضرى للنبات يتأثر بدرجة أشد من مجموعـــــه الجذرى .

تلعب وظائف تخزين واسترجاع البيانات دورا هاما في نظـــم الحاسبات الألكترونية ، وهناك العديد من وسائل التخزيـــن المتاحة للاستخدام في تلك النظم ، ومن الطبيعي أن تستحـوذ المنشأة أو الوحدة التنظيمية على الطاقة التخزينية اللازمــة للوفاء باحتياجات التشغيل الفعال للبيانات ، وبالتالــي كان من الضروري أن تدرس بشيء من التفصيل تصنيفات وسائل تخزين واسترجاع البيانات ليمكن للقارىء أن يفاضل بين الأنواع المختلفه .

ولكن كيف يمكن للحاسب أن يحدد مواضع البيانات التي يتــم تخزينها في الذاكرة الرئيسية مثلا ؟ وكيف يمكن لوحدة تنظيميـة أن تنظم بياناتها لتخزينها واسترجاعها في الوقت المناسـب وفي الشكل الناسب ؟ ماهي الوسائل المختلفة لتغذية الحاسب الألكتروني بالبيانات ولاستخراج البيانات التي تم تشــغيلها ؟ ماهي أوجه المفاضلة بين أنواع ووسائل المدخلات ؟ . .

تلك هي أمثلة للتساؤلات التي قد تثور في ذهن القارىء عند هذه المرحلة من دراسة نظم الحاسبات الألكترونية ، لهذا تنصــب المناقشة في هذا الفصل حول النقاط التالية : -

دراسة هيكل البيانات التي تشكل الركيزة الأساسية لقاعدة البيانــات بالوحدة التنظيمية ، وموضع اهتمامنا هو هيكل نظم المعلومات المحاسبية والإدارية   .

- دراسة تصنيف أنواع التخزين المتاحة في الحاسبات الألكترونيـــة من تخزين داخلي (أولى أو رئيسي وثانوى أو ســـاعـد) وتخزين خارجي .

- تفهم الكيفية التي يتم بموجبها وضع البيانات في الذاكرة ، أي دراسة مايسمى " هيكل العنونــة " .

- التعرض لأساليب تنظيم التخزين في الحاسبات الألكترونيــة .

وقد يبدو ولأول وهلة أنه طالما تيار التفريغ لا يصل الى قيمة عاليـــة جدا فان السعة بالأسبير ، ساعة لاتعتمد على معدل التفريـــغ أى أنه اذا كان معدل التفريغ أسبير واحد فى ١٠ ساعات فانـــه سوف يكون لهنفس التأثير من حيث التغيرات الكيميائية فى الألـــواح مثل معدل التفريغ ٢ أسبير فى ٥ ساعات أو ٤ أسبير فى $\frac{1}{2}$ ٢ ساعة ولكن ، تبـــــــد وجد عمليا أن هذا لايحدث بالضبـــط ، حيث أن معدل حدوث التغيرات الكيمـائية فى الألواح يتأثـــر بمعدل التفريغ ، بينما تأثره بقيمة التيار يكون قليلا ،وكمثال لذ لك لو كان لدينا عمود سعته ١٠٠ أسبير ، ساعة بمعدل تفريغ ١٠ساعات فاذا كان معدل التفريغ ٥ ساعات فان السعة سوف تكون عند ئــــذ ٥ و ٨٢ أسبير/ساعة بينما تصل السعة الى ٥٠ أسبير / ساعة اذا كان معدل التفريغ ١ ساعة (ساعة واحـدة) .

والكثافة العاد ية لحمض المركم تكون ٢١و١ فى حالة الشحن الكامـــل المقابلة لحمض تركيزه ٢٨ ٪ بالوزن ، واذا فرغ الى فرق جهد قــدره ٨و١ فولت على الطرفين فان كثافة الحمض (density of the acid) سوف تقل الى أن تصل الى ١٨و١ .

مركم الرصاص الحامضـــي

The Lead Acid Accumulator

مركم الرصاص الحامضي يعتبر من أكثر أنواع المراكم شيوعا وهو يتكـــون من ألواح من الرصاص (Lead Plates) موضوعه فى حامـــض كبريتيك مخفف (Dilute Sulpheric Acid) . وهو يعتمد على الحقيقة التى تقول أنه اذا وضع لوحان نظيفـــــان من الرصاص فى حامض كبريتيك مخفف. وزنه النوعـــــــي (Specific gravity) ٢٠و١ ومر تيـــار ، فانه سوف يصاحب مرور هذا التيار تصاعد غاز الهيد روجين من علـــى الكاثود (Cathode) وحينما يستعيد هذا القطب (Electrode) لونه الأصلى فان الآنود (Anode) سوف يصبح لونه بنى قاتم (dark brown) نتيجة لتكون بيروكسيد الرصاص (Lead peroxide) عليه .

كانت الجراحة ـ في بداية الأمر ـ عند الأطباء المسلمين تسمى " صناعة اليد " ولم تكن علما مستقلا ، حيث كانت من جملة صناعة الحجامين ،الذين يقومون بالكي والفصد والبتر ، ولكن عندما تقدم الطب الاسلامي ، تقدمت معه الجراحة حتى وصلت أوجمها على يد أبي القاسم الزهراوى في الأندلس في القرن العاشر الميلادى في وقت لم تكن اوروبا تعرف عن الجراحة شيئا ،وبلغ الأمر من تحقير شأن الجراحة واهمالها ، أن مدرسة الطب في مونبلييه بفرنسا ألغت دراسة الجراحة ومنعت مزاولتها في القرن السابع عشر ، وذلك عندما اكتشف الطبيب الفرنسي" لانفرانــــك " جهل الأطباء الفرنسيين وتأخرهم حين قرأ كتاب الزهراوى وأعجب به ، ثم كتب رأيه الذى اتهم فيه كل أطباء فرنسا بالجهل والتأخر وقال انه لا يوجد فيهم جراح واحد بمنعته ــــــــــ .

وحيث أن اجراء العمليات الجراحية يحتاج للتخدير العـــــام أو الموضعي لمنع الألم ، فلقد قدم الأطباء المسلمون الكثير من العقاقير والوسائل المبتكرة لتخدير المرضى ، لقد استخدمـــوا الأفيون في التخدير بعد أن كان من سبقهم من الأطباء يستخدم ، الخمر وهي محرمة في الاسلام ،ثم تجاوزوا هذه المرحلة ووصلــوا الى اكتشاف عديد من النباتات المخدرة ،ثم ابتكروا لأول مرة فـــي العالم طريقة التخدير بالاستنشاق ، حيث كان الطبيب الأندلسي ابن زهر يخدر مرضاه بالاسفنجة المنوم الذى كان يغمرفي مواد عطرية ومنومة مثل الزوان والأفيون والشيلم والسيكران .

ان المقارنة بما نعرف اليوم عن وظيفة التنفس وذلك من دون أن نتعمق في تفصيل الكيمياء والفيزيولوجيا الدقيقه ، ستساعدنا على اعطــاء صورة واضحة حسب الامكان عن فسيولوجيا التنفس كما يشرحهـــا ابن ســــينا .

يقول أبن سينا بعد عرضه لتشريح الرئة وأعضاء الصدر المتصلـــة بها ، ينقسم (جسم القصبة) الى قسمين ثم ينقسم الى أقســـام تجرى في الرئة مجاورة لشعب العروق الضاربة والساكتة وينتهـــي توزيعها الى فوهات هي أضيق جدا من فوهات ما يشاكلهــا ...

ثم يفسر ذلك بقوله ، أما شعبها مع العروق السواكن فليأخذ منها الغذاء
وأما ضيق فوهاتها فليكون بقدر ما ينفذ فيها النسيم الى الشرايين المؤديـة
الى القلب .

أما عن الدورة الدموية القلبية الرئوية فيقول : أول ماينبت من
التجويف الأيسر شريانان أحدهما يأتي الرئة وينقسم فيها باستنشــــاق
النسيم وايصال الدم الذى يغذو الرئة الى الرئة من القلب ، وهو ذو طبقة
واحدة بخلاف سائر الشرايين ولهذا يسمى الشريان الـــــوريـدى . . . . . .
(ق ك ١ ص ٩٥) ويقول من الوريد الذى يسمى بالباب ، ينقســـم
الى قسمين قسم منه يأتي القلب فينفذ فيه عند اذن القلب الأيمن . . . . .
وهذا الوريد يخلف عند محاذاة القلب عروقا ثلاثا تصير منه الى الرئــــة
نابتا عند منبت الشرايين بقرب الأيسر ، منعطفنا في التجويف الأيمـــــن
الى الرئة ، وقد خلق ذا غشائيـــن كالشريانات ، فلهذا يسمى الـــوريـد
الشرياني . . . أما دور هذه العروق فيوضحه في قولـــــــــــه .

1. <u>Narrative Text</u>

<u>CONTROL GROUP TEXT</u>

      There were two things which Annette had wanted very much to do ever since she had arrived.   One was to carve her name on a wooden bust by Grinling Gibbons.   It was in the common-room.   There was something solemn and florid about this work.   This made her itch for a blade.   The wood was soft and inviting.   However, she rejected this idea, because she had mislaid her pocket-knife.   The other was to swing on the chandelier in the dining-room.   She turned in that direction and bounded in.   Tables and chairs stood by there, silent with disapproval.   She looked at the thing which facinated her and her heart beat violently.   The thing seemed enormously high up and far way.   It hung from a stout chain; she had noticed this carefully when she had studied it in the past.   Annette had also remarked a strong metal bar, right in the centre of it, on which she had always planned to put her hands.   All about and above it were suspended tiny drops of crystal.   Each was glowing with a drop of pure light tinier still, as if a beautiful wave had been arrested in the act of breaking while the sun was shining on it.   The girl had felt sure that if she could swing upon that thing the music which was hidden in them would break out into a great peal of beels.   But now it seemed to be hard to get at.

      In her imagination Annette had always reached her objective by a flying leap from the High Table;   but she could see now that this was not a very practical idea.   Grimly she began to pull one of the tables into the centre of the room.   On top of that she placed one of the chairs.   Then she began to climp up.   By the time she was on the table she was already beginning to feel rather far away from the ground.   Annette was afraid of heights.   However, she mounted on to the chair.   Here, by standing on tiptoe, she could get her hands over the metal thing.   She paused breathlessly.   Then with a quick movement she kicked the chair away and hung stiffly in mid-air.

      She kept her feet neatly together and her toes pointed.   Then she began to swing very gently to and from.   The thing began to ring, not with a deafening peal but with a very high and sweet tinkling sound.

      At that moment the door opened and Miss Walpole came in.   Annette who was at the end of her swings, let go abruptly of the chandelier and, missing the table, fell to the floor with a crash at the lady's feet.   The lady looked down at her with a silent frown.   She was never sure which she disliked most, adolescent girls or small children; the latter made more noise, it was true.   But they were often in the long run easier to handle.

<u>EXPERIMENTAL GROUP TEXT</u>

      There were two things which Annette had wanted very much to do ever since she had arrived.   One of these things was to carve her name on a wooden bust by Grinling Gibbons.   The bust was in the

common-room. There was something solemn and florid about this bust. This solemn thing made her itch for a blade. The wood was soft and inviting. However, she rejected this idea of carving her name on the bust, because she had mislaid her pocket-knife. The other thing was to swing on the chandelier in the dining-room. Annette turned in the direction of the dining-room and bounded in. Tables and chairs stood by in the dining-room, silent with disapproval. She looked up at the chandelier which facinated her and her heart beat violently. The chandelier seemed enormously high up and far way. The chandelier hung from a stout chain; she had noticed that the chandelier hung from a stout chain when she had studied it in the past. She had also remarked a strong metal bar, right in the centre of the chandelier, on which she had always planned to put her hands. All about and above the bar were suspended tiny drops of crystal. Each drop of crystal was glowing with a drop of pure light tinier still, as if a beautiful wave had been arrested in the act of breaking while the sun was shining on it. Annette had felt sure that if she could swing upon the chandelier the music which was hidden in the drops would break out into a great peal of beels. But now it seemed to be hard to get at the chandelier.

In her imagination Annette had always reached her objective which was to swing on the chandelier by a flying leap from the High Table; but she could see now that flying from the table was not a practical idea. Grimly she began to pull one of the tables into the centre of the dining-room. On top of that table she placed one of the chairs. Then she began to climp up. By the time she was on the table she was already beginning to feel rather far away from the ground. Annette was afraid of heights. However, she mounted on to the chair. Standing on tiptoe on the chair, she could get her hands over the metal bar. She paused breathlessly. Then with a quick movement she kicked the chair away and hung stiffly in mid-air.

She kept her feet neatly together and her toes pointed. Then she began to swing very gently to and fro. The chandelier began to ring, not with a deafening peal but with a very high and sweet tinkling sound.

At that moment the door opened and Miss Walpole came in. Annette who was at the end of her swings, let go abruptly of the chandelier and, missing the table, fell to the floor with a crash at the Miss Walpole's feet. Miss Wapole looked down at Annette with a silent frown. Miss Walpole was never sure which she disliked most, adolescent girls or small children; small children made more noise, it was true. But the children were often in the long run easier than adolescent girls to handle.

Circle a, b, c or d which best answers the question

1. What was the first thing Annette wanted to do?

    a. to put the bust in the common-room
    b. to carve her name on the bust
    c. to carve the name of Gibbons on the bust
    d. to look for a blade.

2. Why did she want to do that?

    a. because there was something solemn about the bust
    b. because there was something solemn about the name `Gibbons´
    c. because she had a sharp blade
    d. because the bust was soft and inviting

3. What made her change her mind?

    a. the blade was not sharp enough
    `b.  she hated `Gibbons´
    c. she mislaid the blade
    d. she mislaid her pocket-knife.

4. What was the second thing she wanted to do?

    a. to swing in the common-room
    b. to swing on the chandelier
    c. to swing on the bust
    d. to wing in the dining-room

5. What fascinated her?

    a. the bust
    b. the tables and chairs
    c. the beating of her heart
    d. the chandelier

6. What was unusual about the chandelier?

    a. being high
    b. being in the dining-room
    c. being so far from the tables and chairs
    d. being far from the bust

7. Where did the crystal drops hang?

    a. around the chandelier
    b. around the chair
    c. around the dining-room
    d. around the bar

8.   According to Annette, where was the music hidden?

       a. in the chandelier
       b. in the metal thing
       c. in the drops
       d. in the chain

9.   How did she usually realize her aim?

       a. by swinging on the chandelier
       b. by jumping from the High Table
       c. by pulling one of the chairs
       d. by climbing on the bar

10.   How did she reach the bar?

       a. by climbing from the chairs
       b. by climbing from the High Table
       c. by swining on the chandelier
       d. by climbing up the bar

11.   What began to ring as she swung?

       a. the doorbell
       b. the telephone
       c. the swing
       d. the chandelier

12.   What did Annette do when Miss Walpole entered the room?

       a. she climbed higher on the chandelier
       b. she fell on the table
       c. she fell on Miss Walpole's feet
       d. she missed the table

13.   Who was not sure whether she disliked adolescent girls or
       children?

       a. Annette
       b. Annette's little sister
       c. the lady
       d. Miss Walpole's children.

14.   Who made more noise?

       a. children
       b. adolescent girls
       c. Annette
       d. Miss Walpole

15. Who was eventually easier to handle?

    a. adolescent girls
    b. Annette
    c. the lady
    d. children

2. Science Text

Electric Fish

The idea of a fish being able to generate electricity strong enough to light lamp bulbs- or even to run a small electric motor- is almost unbelievable. Several kinds are able to do so. Even more strangely, this has been acquired in different ways by fish belonging to very different families.

Perhaps the best known are the electric rays, the electric eel, and the electric catfish. Several kinds of the first, often called torpedoes, live in warm seas. They possess on each side of the head, behind the eyes, a large organ consisting of a number of hexagonal-shaped cells rather like a honeycomb. These are filled with a jelly-like substance, and contain a series of flat electric plates. The negative side of each is supplied with very fine nerves, connected with a main nerve coming from a special part of the brain. Current passes from the upper positive side of the organ downwards to the negative, lower one. Generally, it is necessary to touch the fish in two places, completing the circuit in order to receive a shock. Its trength depends on the size of the fish. Newly born ones only about 5 centimeters across can be made to light the bulb of a pocket flash light, for a few moments. On the other hand, a fully grown one gives a shock capable of knocking a man down, and, if suitable wires are connected, will operate a small electric motor for several minutes.

The second gives an even more powerful shock. The system is different from that of the torpedo in that the electric plates run longitudinally and are supplied with nerves from the spinal cord. Consequently, the current passes along the fish from head to tail. Their electric organs are really altered muscles and like all muscles are apt to tire; so they are not able to produce electricity for very long. People in some parts of South America, who value the fish as food, take advantage of this by driving horses into the water against which the fish discharge their electricity. Those are less affected than a man would be, and when the electric eels have exhausted themselves, they can be caught without danger.

The third which can be found in the Nile and in other African fresh waters has a different system again by which current passes over the whole body. The shock given by this arrangement is not so strong as the other two, but is nonetheless unpleasant. It is a slow, lazy fish, fond of gloomy places and grows to about 1 metre in length. The power of producing electricity may serve these fish both for defence and attack. If a large enemy attacks them, the shock will drive it away; but it appears that the second and the third use their current most often against smaller fish, stunning them so that they can be easily overpowered.

Electric Fish

The idea of a fish being able to generate electricity strong enough to light lamp bulbs- or even to run a small electric motor- is almost unbelievable. Several kinds are able to generate this amount of electricity to light these lamp bulbs or run the small electric motor. Even more strangely, the power of generating electricity has been acquired in different ways by fish belonging to very different families.

Perhaps the best known fish are the electric rays, the electric eel, and the electric catfish. Several kinds of the electric rays, often called torpedoes, live in warm seas. The electric rays, or torpedoes, possess on each side of the head, behind the eyes, a large organ consisting of a number of hexagonal-shaped cells rather like a honeycomb. These cells are filled with a jelly-like substance, and they contain a series of flat electric plates. One side, the negative side of each, is supplied with very fine nerves, connected with a main nerve coming from a special part of the brain. Current passes from the upper, positive side of the organ downwards to the negative, lower side. Generally, it is necessary that the current touches the positive and the negative sides of the fish, completing the circuit, in order to receive a shock. The strength of this shock depends on the size of the fish. The shock of the newly born electric rays or torpedoes only about 5 centimeters across can be made to light the bulb of a pocket flash light, for a few moments. On the other hand, a fully grown electric ray or torpedo gives a shock capable of knocking a man down, and, if suitable wires are connected, fully grown torpedo will operate a small electric motor for several minutes.

The second kind of fish is the electric eel. This fish gives an even more powerful shock than the electric ray. The system of the electric eel is different from that of the torpedo in that the electric plates run longitudinally and are supplied with nerves from the spinal cord. Consequently, the current passes along the electric eel from head to tail. The electric organs of the electric eel are really altered muscles and like all muscles are apt to tire; so they are not able to produce electricity for very long. People in some parts of South America, who value the electric eel as food, take advantage of that fact that the electric eel do not produce electricity for very long by driving horses into the water against which the fish discharge their electricity. The horses are less affected than a man would be, and when the electric eel have exhausted themselves, they can be caught without danger.

The third kind is the catfish. The catfish can be found in the Nile and in other African fresh waters and its system is different from the electric rays, or torpedos, and the electric eels in that current passes over the whole body from tail to head. The shock given by this arrangement is not so strong as the electric ray and the electric eel. The electric catfish is a slow lazy fish, fond of gloomy places and grows to about 1 metre in length.

The power of producing electricity may serve these three kinds of fish both for defence and attack. If a large enemy attacks these fish, their shock will drive it away; but it appears that the catfish and the electric eel use their current most often against smaller fish, stunning them so that they can easily be overpowered.

<u>Circle a, b, c or d which best answers the question</u>

1. What are several kinds of fish able to do?

    a. to run electric motors
    b. to generate electricity
    c. to light lamp bulbs
    d. to swin skillfully

2. Torpedoes belong to:

    a. the electric eel
    b. the electric catfish
    c. the electric motors
    d. the electric ray

3. Where is the jelly-like substance found?

    a. in the electric plates
    b. in the electric rays
    c. in the eyes
    d. in the cells

4. How is the electric current generated?

    a. by passing from the positive side to the negative side of
        the organ.
    b. by passing through the fine nerves
    c. by passing from the main nerve downwards
    d. by passing from the honeycomb downwards

5. When does the fish receive a shock?

    a. when the current touches any two places in the fish
    b. when the current passes through the fine nerves
    c. when the current touches two fish
    d. when the current touches the positive and negative side of
        the fish

6. Whose shock is capable of knocking a man down?.

    a. the shock of a newly-born torpedo
    b. the shock of a fully grown electric eel
    c. the shock of a fully grown electric ray
    d. the shock of a fully grown electric catfish

7. Which is capable of giving a more powerful shock?

    a. the electric ray
    b. the electric eel
    c. the electric catfish
    d. the fully grown torpedo

8. How are the systems of the electric eel and the torpedoes different?

    a. the plates of a torpedo run longitudinally and are connected with nerves from the spinal cord
    b. the plates of an eel run longitudinally and connected with nerves from the brain
    c. the plates of an eel run longitudinally and are connected with nerves from the spinal cord
    d. the plates of a torpedo run longitudinally and are filled with a jelly-like substance

9. Why are electric eels incapable of producing electricity for very long?

    a. because their electric organs tire
    b. because their electric current passes from head to tail
    c. because their muscles are not very trong
    d. because torpedoes attack them

10. What fact do some South Americans take advantage of?

    a. that the fish can be eaten
    b. that the fish scare horses
    c. that the fish can be caught easily
    d. that the fish do not produce electricity for very long

11. Why do South Americans use horses to discharge the fish's electricity?

    a. because they can run quickly
    b. because they can swim
    c. because they are less affected by electricity than man
    d. because they are less affected by electricity than the fish

12. Which fish live in the Nile?

    a. the electric ray
    b. the electric catfish
    c. the electric eel
    d. the torpedo

13. Whose shock is stronger than that of the third kind of fish?

    a. the electric ray's
    b. the electric eel's
    c. a. and b.
    d. the torpedo's

14. Which fish is slow and fond of gloomy places?

    a. the catfish
    b. the torpedo
    c. the eel
    d. the ray

15.   Which fish use their current against smaller fish?

      a. the catfish
      b. the eel
      c. a. and b.
      d. the eel and the ray.

3. Culturally-oriented Text

The falcon and the hawk are long-winged birds of prey found in many parts of the world. The second is smaller and with rounded wings. Both feed on live prey which they kill by striking or catching in the air. If it is on the ground, they dive at it. They are generally considered to be the most perfectly developed of all birds, beautifully symmetrical in shape and incredibly fast in flight. They all have sharp, hooked peaks for tearing flesh, and wonderfully keen eyes. The legs are short but sturdy. These have large curved claws called talons. In almost all species the female is larger and the one used in falconry.

This is the pursuit of game by means of falcons. It has been popular in the Middle East, especially in Arabia, for over two thousand years. It was not only a pastime, but was a practical way of hunting small game before the development of firearms. The latter are, unfortunately, replacing it nowadays; and although a few people are still interested in this sport, it has virtually died out, and the new generations in Saudi Arabia and Kuwait actually know very little about it. This is one reason why it deserves special mention.

The training of the bird requires much care and patience, especially if it is caught while very young. In most parts of Arabia hunters prefer to catch it when it is fully grown. In Kuwait a special falcon-trapper called a taruh catches it. Briefly, this is how he captures one.

He hides in a hole in the sand that has a mud roof with several holes in it. Through these he can look out in all directions. Two ropes lead out of this dug-out: a thin rope and a thick one. To the and of the first a live pigeon is tied and hidden in a hole under a piece of canvas. The thicker one is attached to a special net-trap. A false bait of a few fluttering feathers attracts the attention of a hunting bird. The trapper then pulls the rope connected to the real bait, uncovering the pigeon and allowing it to fly. The wild, hungry bird does not give it time to fly high, but at once kills it and begins to eat its flesh. The taruh very slowly and carefully starts to pull the thin rope until both the bait and the hunting bird are under the net-trap. With one quick snap he pulls the thick one and the net falls over the bird.

Later, it is given a name and taught to answer the call. Most of the time it is hooded with a piece of leather, leaving an aperture for the peak, and it is trained to sit on the hand (usually gloved) and to eat from the lure. This is a piece of wood or leather covered with wings and feathers and attached to a cord. To this a piece of meat is fastened.

The trainer (or falconer) swings the device round and round his head, accompanying the action by some call. When it has been taught to obey the lure, it is trained to catch live birds. In Kuwait and many other parts of Arabia this is usually the bustard, or hubara.

The falcon and the hawk are long-winged birds of prey found in many parts of the world. The hawk is smaller and with rounded wings. The falcon and the hawk feed on live prey which they kill by striking or catching in the air. If the prey is on the ground, the falcon and the hawk dive at it. The falcon and the hawk are generally considered to be the most perfectly developed of all birds, beautifully symmetrical in shape and incredibly fast in flight. The falcon and hawk have sharp, hooked peaks for tearing flesh, and wonderfully keen eyes. The legs of the falcon and the hawk are short but sturdy. These legs have large curved claws called talons. In almost all species the female is larger than the male and it is the one used in falconry.

Falconry, or hawking, is the pursuit of game by means of falcons. Falconry has been popular in the Middle East, especially in Arabia, for over two thousand years. Falconry was not only a pastime, but was a practical way of hunting small game before the development of firearms. Firearms are, unfortunately, replacing falconry nowadays; and although a few people are still interested in falconry, it has virtually died out, and the new generations in Saudi Arabia and Kuwait actually know very little about falconry. This is one reason why falconry deserves special mention.

The training of falcons requires much care and patience, especially if the falcon is caught very young. In most parts of Arabia hunters prefer to catch falcons when they re fully grown. In Kuwait a special falcon-trapper called a <u>taruh</u> catches falcons. Briefly, this is how the taruh captures a falcon.

The hunter, or taruh, hides in the sand that has a mud roof with several holes in it. Through these holes the hunter can look out in all directions. Two ropes lead out of this hiding place: a thin rope and a thick rope. To the end of the thin rope a live pigeon is tied and hidden in a hole under a piece of canvas. The thicker rope is attached to a special net-trap. A false bait of a few fluttering feathers attracts the attention of a hunting falcon. The trapper then pulls the thin rope which is connected to the real bait, uncovering the pigeon and allowing it to fly. The wild, hungry falcon does not give the pigeon time to fly high, but at once kills it and begins to eat its flesh. The hunter, or taruh very slowly and carefully starts to pull the thin rope until the pigeon and the hunting falcon are under the net-trap. With one quick snap he pulls the thick rope and the net-trap falls over the falcon.

Later, the falcon is given a name and taught to answer the call. Most of the time the falcon is hooded with a piece of leather, leaving an aperture for the peak, and the falcon is trained to sit on the hand (usually gloved) and to eat from the lure. The lure is a device made of wood or leather covered with wings and feathers of a bird and attached to a cord. To this cord a piece of meat is fastened.

The trainer (or falconer) swings the lure, or device round and round his head, accompanying the action by some call. When the falcon has been taught to obey the lure, it is trained to catch live birds. In Kuwait and many other parts of Arabia, the bird to be caught is usually the bustard, or <u>hubara</u>.

1. How are the falcon and the hawk different?

   a. the falcon is smaller and has rounded wings
   b. the hawk is smaller and has rounded wings
   c. the falcon has longer wings
   d. they are not different

2. Which strikes and catches live prey in the air?

   a. the falcon
   b. the hawk
   c. a and b
   d. round-winged birds

3. Whose female is larger than the male?

   a. the falcon
   b. the hawk
   c. the prey
   d. the round-winged birds

4. Where are the talcons?

   a. on the peaks
   b. on the eyes
   c. on the legs
   d. on the claws

5. What is falconry?

   a. hunting by falcons
   b. hunting hawks
   c. hunting by game
   d. hunting falcons

6. What was the favourite pastime in Arabia before firearms.

   a. hunting falcons ·
   b. hunting games
   c. hunting hawks
   d. hunting long-winged birds

7. What is replacing falconry nowadays?

   a. hawks
   b. games
   c. falcons
   d. firearms

8.   Why does falconry deserve special mention?

      a. because it died out
      b. because the new generations in Arabia are still interested in it.
      c. because the new generations do not know much about it
      d. because it is replaced by firearms

9.   What does a taruh catch?

      a. a fully grown falcon
      b. a fully grown game
      c. a fully grown hawk
      d. a fully grown bird

10.   How can a taruh look in all directions?

      a. through the hole where he hides
      b. through the mud
      c. through the holes in the roof
      d. through the roof

11.   Where is the live pigeon tied?

      a. to the end of the thin rope
      b. to the end of the thick rope
      c. to the end of the piece of canvas
      d. to the end of the dug-out

12.   Whose attention do the fluttering feathers attract?

      a. the taruh´s
      b. the pigeon´s
      c. the falcon´s
      d. the bird´s

13.   What is given a name and taught to answer the call?

      a. the taruh
      b. the bird
      c. the game
      d. the falcon

14.   What is a lure?

      a. the real bait
      b. the piece of cord
      c. the piece of wood
      d. the piece of meat

15.   What does the taruh swing round his head?

      a. the falcon
      b. the lure
      c. the real bait
      d. the cord

REFERENCES

Abdul-Latif, M.H., (1982), Fi binaa'i lJumla L9arabiyya, Kuwait: Dar Al-Qalam.

Alderson, J.C. & Urquhart, A.H. (Eds.), (1984), `Reading in a Foreign Language´, London: Longman.

Al-Jubouri, A.J.R., (1983), `The role of repetition in Arabic argumentative discourse´, in Swales, J. & Mustafa, H. (Eds.), English for Specific Purposes in the Arab World, LSU: Aston University in Birmingham, 99-117.

Al-Khateeb, M., (1983), Qawaa9idu l'imlaa´, Kuwait: Dar Al-Qalam.

Allen, S. (Ed.), (1982), `Text processing as a theme: The capriccio and ostinato of texts´ in Allen, S. (Ed.), Text Processing, Stockholm: Almqvist of Wiksell International, 15-22.

Anderson, R.C., Reynolds, R.E., Schallert, D.L. and Goetz, E.T., (1977), "Frameworks for comprehending discourse:. American Educational Research Journal, 14, 367-381.

Andersson, E., (1978), `An analysis of textual cohesion in a passage from Maria Gripe's `Hugo Och Josefin´ in Ostman, J.O. (Ed.) Reports on Text Linguistics: Cohesion and Semantics, publications of the Research Institute of the Abo Akademi Foundation, 131-143.

Anshen, F. and Schreiber, P.A., (1968), `A focus transformation of Modern Standard Arabic´. Lg. 44. 792-7.

Ba`alabki, M., (1972), Al Mawrid: A Modern English - Arabic Dictionary, Beirut: Dar El-ilm Lil-Malayen.

Beeston, A.F.L., (1970), The Arabic Language Today, London: Hutchinson and Co. (publishers) ltd.

Bellert, I., (1970), `On a condition of the coherence of texts´. Semiotica Vol. 2, 334-363.

Bower, G.H., (1976), "Experiments on story understanding and recall". Quarterly Journal of Experimental Psychology, 28, 511-534.

Bowley, C.C., (1962), `Cohesion and the paragraph: a textual analysis´, Unpublished General Linguistic Diploma Dissertation, Edinburgh University.

Britton, B.K. and Graesser, A., (1983), "Use of cognitive capacity in Reading: Effects of some content feature of text: Discourse processes 6, 39-57.

Brown, G. and Yule, G., (1983), `Discourse Analysis´. Cambridge: University of Cambridge Press.

Bulos, A.A., (1965), The Arabic Triliteral Verb, Beirut: Khayats.

Cantarino, N., (1974), Syntax of Modern Arabic Prose: The Simple Sentence´, Vol. 1, Indiana: Indiana University Press.

Carrel, P.L., (1982), ´Cohesion is not coherence, TESOL Quarterly, 16/4, 479-488.

Chafe, W.L., (1976), ´Givenness, contrastiveness, definitiveness, subjects, topics, and points of view. In Li, C. (Ed.) ´Subject and Topic´. New York: Academic Press, 27-55.

Chafe, W.L., (1977), "Creativity in verbalization and its implications for the nature of stored knowledge ". In Freedle, R.O. (Ed.) Discourse Production and Comprehension. Norwood: Ablex Publishing Corporation, 41-55.

Chafe, W.L., (1979), ´The flow of thought and the flow of language´, in Syntax and Semantics, Vol 12: Discourse and Syntax. new York: Academic press, 129-181.

Chapman, L.J., (1979) ´Confirming children´s uses of cohesive ties in texts: pronouns. The Reading Teacher 33(3), 317-22.

Chapman, L.J., (1980) ´The development of the perception of textual cohesion´. Paper presented at the 25th Annual Convention of the International Reading Association, St. Louis, Missouri, USA.

Chapman, L.J., (1983), ´Reading Development and Cohesion´. London: Heinemann Educational Books.

Cheong, L.K., (1978), The syntax of scientific English, Singapore University press.

Chomsky, N., (1965), Aspects of the theory of syntax. Cambridge, M.A.: MIT Press.

Clark, H.H. & Haviland, S.E., (1977), ´Comprehension and the given-new contract´, in Freedle, R.O. (Ed.), Discourse Processes: Advances in Research and Theory, Norwood, N.J.: Albex Publishing Co., 1-40.

Coulthard, M., (1977), An Introduction to Discourse Analysis, London: Longman.

Coulthard, M., and Montgomery, M. (Eds.) (1981), Studies in Discourse Analysis, London: Routledge & Kegan Paul Ltd.

Cowan, J.W., (1970), ´Factors influencing Arab and Iranian students in country and in the United States´ in Althen, G.L. (Ed.), Students from the Arab World and Iran, Washington, D.C: NAFSA. 1-13.

Crymes, R., (1968), Some Systems of Substitution Correlations in Modern American English, The Hague: Mouton.

Crystal, D. and Davy, D., (1969), <u>Investigating English Style</u>, London: Longman.

Danes, F. (Ed.), (1974), <u>Papers on Functional Sentence Perspective</u>, Prague: Academia.

Danes, F. (1974), `Functional sentence perspective and the orgnisation of text´ in Danes, F. (Ed.), 106-128.

Danes, F. (1970), `One instance of Prague School methodology: functional analysis of utterance and text´, in Garvin, P.L. (Ed.), <u>method and Theory in Linguistics</u>, The Hague: Mouton, 132-146.

Danes, F. (1964), `A three-level approach to syntax´. <u>Travaux Linguistiques de Prague</u>, 1, 225-40.

Danes, F. (1968), `Some thoughts on the Semantic Structure of the sentence´, <u>Lingua</u> 21, 55-9.

de Beaugrande, R., (1980), <u>Text, Discourse, and Process</u>, London: Longman.

de Beaugrande, R. & Dressler, W., (1981), <u>Introduction to Text Linguistics</u>, London: Longman.

de Beaugrande, R., (1981), `Design criteria for process models of reading´. <u>Reading Research Quarterly</u>, No 2, 261-315.

de Beaugrande, R., (1983). `Linguistic and cognitive processes in developmental writing.´ <u>IRAL</u>, 21/2, 125-143.

de Beaugrande, R., (1984). `The linearity of reading text: Fact, Fiction, or Frontier?´, in Flood, J. (Ed) <u>Understanding Reading Comprehension</u>. Delware: International Reading Association, 45-74.

Dudley-Evans, R., & Swales, J., (1980) `Study Modes and Students from the Middle East´, <u>ELT documents 109</u>, The British Council, London.

Edmunson, W., (1981), <u>Spoken Discourse</u>, London: Longman.

Ehrlich, S., Passerault, J. & Personnier, G., (1982), `Levels of functioning in semantic meaning and levels of comprehension´ in Flammar, A. & Kintsch, W. (Eds.), <u>Discourse Processing</u>, North Holland Publishing Co. 53-62.

Ellegard, A., (1978), <u>The Syntactic Structure of English Texts</u>, Goteborg: University of Goteborg.

Ellis, J. (1966), `On contextual meaning´ in <u>Memory of J.R. Firth</u>, London: Longman´s Linguistic Library.

Ellis, J. (1976) "The role of the concept of text in the elaboration of linguistic data", <u>York papers-in Linguistics</u>, 691-107.

Enkvist, E., (1983), <u>Linguistic Stylistics</u>, The Hague: Mouton.

Enkvist, E., (1978), `Coherence, pseudo-coherence and non-coherence', in Ostman, J.O., (Ed.), `<u>Reports on Text Linguistics: Cohesion and Semantics</u>', Finland: Abo Akdemi, 99-130.

Enkvist, E., (1985), `Introduction: Stylistics, text linguistics, and composition', <u>Text</u> 5(4), 251-267.

Fahnestock, J., (1983), `Semantic and lexical coherence'. <u>College Composition and Communication</u>, Vol. 34, No. 4, 400-416.

Faigley, L. and Meyer, P. (1983) "Rhetorical theory and readers' classifications of text types". <u>Text</u>, 3(4), 305-325.

Farag, S.M. (1986), `A linguistic analysis of spoken nd written narrative discourse', Unpublished PhD Thesis, Modern Languages Department, Aston University in Birmingham.

Fillmore, C.J., (1982), `Discussion of M.A.K. Halliday's paper' in Allen, S. (Ed.), <u>Text Processing</u>, Stockholm: Almqvist & Wiksell International, 249-58.

Fine, J. (1985), `Cohesion as an index of social-cognitive factors: oral language of the reading disabled'. <u>Discourse Processes</u>, 8, 91-112.

Firbas, J., (1964), `On defining the theme in sentence analysis'. Travaux Linguistiques de prague, 1, 267-80.

Firbas, J., (1966), `Non-thematic subjects in contemporary English', <u>Travaux Linguistiques de Prague</u>, 2, 239-256.

Firbas, J., (1971), `On the concept of communicative dynamism in the theory of functional sentence perspective'. Sbornik Praci Filoso Picke Faculty Brnenske University, A19, 135-144.

Frawley, W.S. & Smith, R.N., (1983), `Patterns of textual coherence in genre-specific discourse', in Williams, S. (Ed.) `<u>Human and Computers: The Interface Through Language</u>', Norwood: Ablex.

Frederiksen, C.H., (1975), `Effects of context-induced processing operations on semantic information acquired from discourse'. <u>Discourse Psychology</u>, 7, 136-166.

Frederiksen, C.H., (1977), `Semantic processing units in understanding text', in Freedle, R.O. (Ed.), <u>Discourse Processes: Advances in Research and Theory, Vol 1</u>', Norwood, H.J.: Albex Publishing Co. 57-87.

Freebody, P. & Anderson, R.C., (1981), `Effects of vocabulary difficulty, text cohesion and schema availability on reading comprehension'. Technical Report No. 225, Center for the Study of Reading. Champaign, IL: University of Illness.

Freedle, R.O., Naus, M. & Schwartz, L., (1977), "Prose Processing from a psychological perspective". In Freedle, R.O. (Ed.) Discourse Production and Comprehension, Norwood: Ablex Publishing Corporation, 175-192.

Fries, P.H., (1983), `On the status of theme in English: arguments from discourse´. Forum Linguistics 6.1, August 1981, 1-38. Also in Petofi, J.S. and Sozer, E. (Eds.), Micro and Macro Connexity Texts, Hamburg: Helmut Verlag (Papers in Text Linguistics 45), 1983, 116-52.

Gibson, E., (1971). `Perceptual learning and the theory of word perception´. Cognitive Psychology, 2, 351-368.

Giora, R., (1983), `Segmentation and segment cohesion: on the thematic orgnization of the text´. Text, 3(2), 155-181.

Glowalla, U. and Colonius, H., (1982), `Toward a model of macrostructure search´ in Flammar, A. & Kintsch, W. (Eds.), 111-123.

Goodman, K.S., (1976), `Reading: A psycholinguistic guessing game´, Journal of the Reading Specialist, 6, 126-135.

Goodin, G. & Perkins, K., (1983), `Discourse anaysis and the art of coherence´, College English, 44, 57-63.

Gopnik, M., (1972), Linguistic Structures in Specific texts. The Hague: Mouton.

Granham, A., Oakhill, J. and Johnson-Laird, P.N., (1982), `Referential continuity and the coherence of discourse´. Cognition, 11, 29-46.

Grice, H., (1975), `Logic and conversation´, in Cole, P. and Morgan, J. (Eds.) `Syntax and Semantics, Vol. 3, New York: Academic Press, 41-58.

Grimes, J.E., (1975), The Thread of Discourse, The Hague: Mouton.

Gumperz, J.J., Kaltman, H. & O´Connor, M.C., (1984), `Cohesion in spoken and written discourse: ethnic style and the transition to literacy´ in Tannen, D. (Ed.), Coherence in spoken and Written Discourse, Norwood, N.J.: Albex Publishing Corporation, 3-19.

Gumperz, J.J., (1982), Discourse Strategies, Cambridge: Cambridge University Press.

Gumperz, J.J. and Hymes, D., (Eds.), (1972), Directions in sociolinguistics: The Ethnography of Communication, New York: Holt, Rinehart, & Winston.

Gutwinski, W., (1976), Cohesion in Literary Texts, The Hague: Mouton.

Haberlandt, K., and Bingham, G., (1978), `Verbs contribute to the coherence of brief narratives: Reading related and unrelated sentence triples´, Journal of Verbal Learning and Verbal Behviour 17, 419-426.

Halliday, M.A.K., (1967), `Notes on transitivity and theme in English: Parts 1, 2´. Journal of Linguistics, 3.1, 3.2, 37-81, 199-244.

Halliday, M.A.K., (1969), `Options and functions in the English clause´. Brnu Studies of English, 8, 81-88.

Halliday, M.A.K., (1979), `Modes of meaning and modes of teaching: types of grammatical structure and their determination by different semantic functions´ in Allerton, D.J. et al (Eds.), Function and Context in Linguistic Analysis, Cambridge: Cambridge University Press. 57-79.

Halliday, M.A.K., and Hasan, R., (1976), Cohesion in English, London: Longman.

Halliday, M.A.K., (1982), `How is a text like a clause? in Allen, S. (Ed.), 209-247.

Halliday, M.A.K., (1985), An Introduction to Functional Grammar, London: Arnold.

Hamady, S., (1960), Temperament and character of the Arabs, New York: Twayne Publishers.

Harris, Z., (1952), `Discourse analysis´. Language, 28, 1-20 and 474-494.

Hartnett, C.G., (1981), `How cohesion expresses thinking´. Unpublished paper, College of the Mainland, Texas City, Texas,, 77591.

Hasan, R., (1964), `A linguistic study of contrasting features in the style of two contemporary English prose writers´. Unpublished Ph.D. Thesis, University of Edinburgh.

Hasan, R., (1968), Grammatical Cohesion in Spoken English, London: Longman.

Hasan, R., (1978), `Text in the systemic-functional model´ in Dressler, W. (Ed.), Current Trends in text Linguistics, Berlin: de Gruyter, 228-246.

Hasan, R., (1984), `Coherence and cohesive harmony´ in Flood, J. (Ed.), Understanding Reading Comprehension, Newark, Delaware: International Reading Association, 181-219.

Hatch, E. and Long, M.H., (1980), `Discourse analysis, what´s that?´ in Larsen-Freeman, D. (Ed.), <u>Discourse Analysis in Second Language Research</u>, Rowley, Masachusetts: Newbury House Publishers, Inc. 1-40.

Haviland, S.E., and Clark, H.H., (1974), Acquiring new information as a process in comprehension. <u>Journal of Verbal Learning and Verbal Behaviour</u>, 13, 512-521.

Hidi, S. & Hilyard, A., (1980), `The comparison of oral and written productions of two discourse types´. Paper presented at the Annual Meeting of the American Educational Research Association, Boston.

Hidi, S., Baird, W. & Hilyard, A., (1982), "That´s important but is it interesting? Two factors in text processing", in Flammer, A. & Kintsch, W., (Eds) <u>Discourse Processing</u>, North-Holland Publishing Co. 63-75.

Hobbs, J.R., (1978), `Why is discourse coherent?´ Menlo Park: Stanford Research Institute, Technical Note 176.

Hobbs, J.R., (1979), `Coherence and coreference´, <u>Cognitive Science</u>, 3, 67-90.

Hobbs, J.R., (1982), `Towards an understanding of coherence in discourse´, in Lehnert, G. & Ringle, M.H. (Eds.) <u>Strategies For Natural Language Processing</u>, Hillsdale, new Jersey, London: Erlbaum, 223-243.

Hoey, M., (1983), `<u>On the surface of Discourse</u>, London: George Allen & Unwin.

Holes, C., (1983), `Textual approximation in the teaching of academic writing to Arab students´, in Swales, J. & Mustafa, H. (Eds.), 228-242.

Huddlestone, R., (1978), `Review article: on classifying anaphoric relations´, <u>Lingua</u> 45, 333-354.

Huddlestone, R., (1984), <u>Introduction to the Grammar of English</u>, Cambridge: Cambridge University Press.

Hurtley, A.F., (1982), `<u>Linguistics for Language Learners</u>´. London: The Macmillan Press Ltd.

Hymes, D., (1972). `On communicative competence´. In Pride, J. & Holmes, J. (Eds). `<u>Sociolinguistics</u>´. Hammondsworth: Penguin, 269-285.

Jarret, D., (1984), `Pragmatic coherence in an oral formalaic tradition: I can read your letters, sure can´t read your mind´ in Tannen, D. (Ed.)

Johns, A.M., (1980), 'Cohesion in Written Business Discourses: Some contrasts', ESP Journal, Vol 1, No 1, 35-43.

Kallgren, G., (1979), 'Some types of textual cohesion and their effects on texts' in Enkvist, N.E. & Wilsell, J. (Eds.), Papers from the Fifth Scandinavian Conference of Linguistics, Stockholm, 135-145.

Kaplan, R.B., (1966), 'Culture thought patterns in intra-cultural education'. Language Learning, 16, 1, 1-20.

Kaplan, R.B., (1967), 'Contrastive rhetoric and the teaching of composition', Paper presented at the TESOL Convention, april, 1967.

Karmiloff-Smith, A., (1977), 'More about the same: Children's understanding of post-articles'. Journal of Child Language, 4, 377-394.

Kempson, R.M., (1977), Semantic Theory, London: Cambridge University Press.

Kintsch, W., (1974), The Representation of Meaning in Memory, Hillsdale, N.J.: Erlbaum.

Kintsch, W., (1982), 'Memory from text' in Flammar, A. & Kintsch, W. (Eds.), Discourse Processing, North-Holland Publishing Co., 186-204.

Kintsch, W. & Green, E., (1978), 'The role of culture-specific schemata in the comprehension and recall of stories'. Discourse processes, 1, 1-13.

Kintsch, W. & van Dijk, T., (1975), 'Recalling and summarizing stories'. Language, 40, 98-116.

Kintsch, W. & van Dijk, T., (1978), 'Toward a model of text comprehension and production'. Psychological Review, 85, 5, 363-394.

Koch, B.J., (1981), 'Repetition in cohesion and persuasion in Arabic'. Unpublished Ph.D. dissertation, University of Michigan.

Koch, B.J., (1983), 'Presentation as proof: The language of Arabic rhetoric'. Anthropological Linguistics, Vol. 25, No. 1.

Labov, W., (1970), 'The study of language in its social context'. Stadium Generale 239, 30-87, reprinted in Labov 1972a.

Labov, W., (1972), Sociolinguistic Patterns, Philadelphia: University of Pennsylvania Press.

Labov, W., (1972a), Language in the Inner City: Studies in the Black English Vernacular, Philadelphia: University of Pennsylvania Press.

318

Larsen, S.F., (1982), "Knowledge updating in text processing". In Flammer, A. and Kintsch, W. (Eds.) <u>Discourse Processing</u>. North-Holland Publishing 10, 205-218.

Lantamatti, L., (1978), `Some observations on cohesion and coherence in simplified texts´, in Ostman, J.O. (Ed.), <u>Reports on Text Linguistics: Cohesion and Semantics</u>, Finland: Abo Akademi, 165-181.

Lehnert, W.G., (1982), `Plot units: A narrative summarization strategy´. In Lehnert, W.G. & Ringle, M.H. (Eds.) <u>Strategies for Natural Language Processing</u>, Hillsdale, N.J.: Lawrence Erlbaum, 375-412.

Lesgold, A.M. and Perfetti, C.A. (1978), "Interactive processes in reading comprehensive", <u>Discourse Processes</u>, 1, 323-336.

Lesgold, A.M., Roth, S.F., and Curtis, M.E., (19), "Foregrounding effects in discourse comprehension". <u>Journal of Verbal Learning and Verbal Behaviour</u>, 18, 291-308.

Levinson, S.C., (1983), <u>Pragmatics</u>, London: Cambridge University Press.

Lewis, G.E., (1982), `Text structure, text processing and testing reading´. <u>M.A.L.S. Journal</u>, Vol 7, 43-69.

Lewkowicz, N.K., (1967), `A transformational approach to the syntax of Arabic participles´. Ann Arbor: University of Michigan dissertation.

Lewkowicz, N.K., (1971), `Topic-comment and relative clause in Arabic´. <u>Language</u>, Vol 47, 810-825.

Longacre, R.E., (1979), `The paragraph as a grammatical unit´, in Givon, T. (Ed.), <u>Syntax and Semantics, Volume 12 Discourse and Syntax</u>, New York: Academic Press, 115-134.

Lyons, J. (Ed.), (1970), <u>New Horizons in Linguistics</u>, London: Penguin Books.

Lyons, J. (1977), <u>Semantics</u>, 2 Vols. London: Cambridge University Press.

Lyons, J. (1981), <u>Language Meaning and Context</u>, London: Fontana Paperbacks.

Lyons, J. (1981), <u>Language and Linguistics</u>, Cambridge: Cambridge University Press.

Mayodromo, T.A., (1982), `On text linguistic theory´ in Petofi, J.S. (Ed.), <u>Text vs Sentence</u>, Hamburg: Helmut Buske Verlag, 1-15.

319

McClure, E. & Geva, E. (1983), `The development of the cohesive use of adversative conjunctions in discourse´, Discourse Processes 6, 411-432.

McKoon, G., (1977), "Organisation of information in text memory", Journal of Verbal Learning and Verbal Behviour, 16, 247-260.

Menke, S.A., (1981), `The noun phrase as a cohesive force in English text grammar´. Unpublished paper presented at the First Midwest Regional TESOL conference.

Meyer, B.J.F., (1975), the Organization of prose and its effect on memory. Amsterdam: North-Holland American Elsevier.

Meyer, B.J.F., (1977), "What is remembered from prose: A function of passage structure." In Freedle, R.O. (Ed.), 307-336.

Meyer, B.J.F., (1981), "Prose analysis: Procedures, purposes and problems". Paper presented at the American Educational Research Association Convention, Los Angeles.

Mitchell, D.C., (1982), The process of reading: A cognitive analysis of fluent reading and learning to read, Chichester: John Wiley and Sons.

Morgan, J.L. and Sellner, M.B., (1980), `Discourse and Linguistic theory´, in Spiro, R. et al (Eds.) Theoretical Issues in Reading Comprehension. Hillsdale, New Jersey: Lawrence Erlbaum Associates Publishers, 165-200.

Mubarak, M., (1979), Qawaa9idu Lluga 19arabiyya, Beirut: Dar ul-Kitabi Llubnani.

Nasr, R.T., (1967), The Structure of Arabic, Beirut: Librairie de Liban.

Norman, D.A., (1976), Memory and Attention : An Introduction to Human Information Processing, (2nd Edition), New York: John Wiley & Sons.

Nuttal, C. (1982), Teaching Reading Skills in a Foreign Language, London: Heinemann.

Omanson, R.C., Warren, W.H. & Trabasso, T., (1978), `Goals, inferential comprehension, and recall of stories by children´. Discourse Processes, 1, 337-354.

Ostman, J.O. (Ed.), (1978), Cohesion and Semantics, Abo Akademi Foundation.

Palek, B., (1968), Cross-reference: A Study from Hyper-syntax, Prague: Charles University Press.

Palmer, F., (1976), Semantics, Cambridge: Cambridge University Press.

Patai, R., (1976), <u>The Arab Mind</u>, New York: Charles Scribuer's Sons.

Pelligrini, A.D., (1984), `The effect of dramatic play on children's generation of cohesive texts', <u>Discourse Processes</u>, 7, 57-67.

Petofi, J., (1973), `Towards an empirically motivated grammatical theory of verbal texts', in `<u>Studies in Text Grammar</u>', Petofi, J. & Reiser, H. (Eds.), Dordrecht: Reidel, 205-275.

Petofi, J., (Ed.), (1979), `<u>Text vs. Sentence: Basic Questions of Text Linguistics</u>'. Hamburg: Buske.

Petofi, J.S. & Rieser, H. (Eds.), (1973), <u>Studies in Text Grammar</u>. Dordrecht: Reidel.

Pike, K., (1967), <u>Language in Relation to a Unified Theory of the Stucture of Human Behaviour</u>, The Hague: Mouton.

Pohl, R.F., (1982), `Acceptability of story continuations', in Flammer, A. & Kintsch, W., (Eds.), 4-136.

Prothro, E.T., (1955), `Arab-American differences in the judgement of written messages', <u>Journal of Social Psychology</u>, 42, 3-11.

Quirk, R. and Greenbaum, S. (1973), <u>A University Grammar of Engish</u>. London: Longman.

Rochester, S.R. and Martin, J.R., (1977), `The art of referring: the speakers use of noun phrases to instruct the listener', `in Freedle, R.O. (Ed.) 245-269.

Rochester, S.R. and martin, J.R., (1977), <u>Crazy talk: A Study of the discourse of Schizophrenic speakers</u>. New York: Wiley.

Rumelhart, D., (1977), <u>Introduction to Human Information Processing</u>. New York: Wiley.

Rumelhart, D., (1984). `Understanding Understanding', in Flood, J. (Ed.), 1-20.

Sacks, H., (1972), `On the analysability of stories by children', in Gumperz, J.J. and Hymes, D. (Eds.), <u>Directions in Soclinguistics</u> New York: Holt, Reinhart and Winston, 325-345.

Sanford, A.J. and Garrod, S.C., (1981), <u>Understanding Written Language</u> Chichester: John Wiley & Sons Ltd.

Sanford, A.J. and Garrod, S.C., (1982), `Towards a processing account of reference' in Flammer, A. & Kintsch, W. (Eds.) 100-110.

Sanford, A.J., Henderson, R.J. & Garrod, S.C. (1980), `Topic shift as variable in text cohesion: experimental evidence from studies in reading time'. Paper presented to a meeting of the Experimental Psychology Society, Cambridge.

Schank, R.C., (1977), `Rules and topics in conversation´. Cognitive Science, 2:4, 421-442.

Schank, R.C., (1975), Conceptual Information Processing, New York: American Elsevier.

Schank, R.C., (1982), `Representing meaning: An artificial intelligence perspective´, in Allen, S. (Ed.) 51, 25-63.

Schank, R.C., (1982), `Reminding and memory organisation: an introduction to MOPS´ in Lehnert, W.C. & Ringle, M.H., (Eds.), Strategies for Natural Language Processing, Hillsdale, N.J.: Erlbaum, 455-493.

Schank, R.C. & Abelson, R., (1977), Scripts, Plans, Goals and Understanding, Hillsdale, N.J.: Erlbaum.

Schank, R.C. and Colby, K., (Eds.), (1972), Computer Models of Thought and Language. San Francisco: Freeman.

Schontz, W. (1982), `How do different readers learn with different text organisations?´ In A.Glammer, A. & Kintsch, W. (Eds.), 87-97.

Shouby, E., (1951), `The influence of the Arabic language on the psychology of the Arabs´, Middle East Journal, 5, 284-302.

Sloan, G., (1983), `Transitions: relationships among T-units´, College composition and communication, Vol. 34, No. 4, 11-17.

Smith, F., (1978), Reading, Cambridge: Cambridge University Press.

Smith, R.N. and Frawley, W.J., (183), `Conjunctive cohesion in four English genres´. Text, 3(4), 347-374.

Snow, J.A., (1965), `A grammar of Modern Written Arabic clauses´. Unpublished Dissertation, Ann Arbor: University of Michigan.

Spiro, R., Bruce, B. & Brewer, W. (Eds.), (1980), Theoretical Issues on Reading Comprehension, Hillsdale: Lawrence Erlbaum Associates.

Steffensen, M. (1981), `Register, cohesion, and cross-cultural reading comprehension´. Applied Linguistics, Vol 7, No 1, 71-85.

Stenning, K. 91977), "Articles, quantifiers, and their encoding in textual comprehension". In Freedle, R.O. (Ed.) Discourse Production and Comprehension. Norwood, New Jersey: Albex Publishing Corporation, 193-212.

Stubbs, M., (1983), Discourse Analysis, London: Basil Blackwell Publisher Ltd.

Stubbs, M., (1986), `Lexical density: A technique and some findings´ in Coulthard, M. (Ed.), Talking About Text, ELR, Birmingham University, 27-42.

Suleiman, M.W., (1973), `The Arabs and the West: Communication gap` in Prosser, M.H. (Ed.), <u>Intercommunication Among Nations and Peoples</u> New York: Harper & Row, 287-303.

Tannen, D. (Ed.), (1984), <u>Coherence in Spoken and Written Discourse,</u> Norwood, N.J.: Albex.

Tannenhaus, M. and Seidenberg, M.S., (1981), `Discourse context and sentence perception` in <u>Discourse Processes</u>, 4, 197-220.

Tennant, H. (1981), <u>Natural Language Processing,</u> New York: A Petrocelli Book.

Thatcher, G.W., (1942), <u>Arabic Grammar of the Written Language,</u> London: Percy Lund, Humphries & Co. Ltd.

Thompson-Panos, K. and Thomas-Ruzic, M., (1983), `The least you should know about Arabic: Implications for the ESL writing instructor`. <u>TESOL Quarterly,</u> Vol. 17, No. 4, 609-623.

Thorndyke, P.W., (1977), "Cognitive structures in comprehension and memory of narrative discourse". <u>Cognitive Psychology,</u> 9, 77-110.

Trabasso, T., Nicholas, D.W., Omanson, R.C. and Johnson, L., (1977), "Inferences in story comprehension". Paper presented at the Symposium on the Development of Discourse Processing Skills: Society for Research in Child Development, New Orleans.

Urquhart, A.H., (1983), `Sticky aspects of cohesion`, <u>M.A.L.S Journal,</u> Vol. 8, 86-104.

Urquhart, A.H., (1984), `The effect of rhetorical ordering on readability`, Alderson, J.C. & Urquhart, A.H. (Eds.), 160-175.

van Dijk, T., (1972), <u>Some Aspects of Text Grammar,</u> The Hague: Mouton.

van Dijk, T., 91977), <u>Text and Context: Exploration in the Semantics and Pragmatics of Discourse,</u> New York: Longman.

van Dijk, T., (1977a), `Connectives in text grammar and text logic`, in van Dijk, T. & petofi, J. (Eds.), <u>Grammar and Descriptions,</u> New York: de Gruyter, 11-63.

van Dijk, T., (1979), `Relevance assignment in discourse comprehension`. In <u>Discourse Processes</u>, 2, 113-126.

Waern, Y. (1982), "How do you fill in this xxx?. On the same interpretation processes." In Flammer, A. and Kintsch, W. (Eds.), 152-165.

Walker, C.H., & Meyer, B.J.F. (1980), "Integrating different types of information in text". <u>Journal of Verbal Learning and Verbal Behaviour,</u> 19, 263-275.

Wehr, H. (1980), A Dictionary of modern Written Arabic: Arabic English Beirut: Librairrie de Liban.

Widdowson, H.G. (1978), Teaching Language as Communication, Oxford: Oxford University Press.

Widdowson, H.G. (1979), Explorations in Applied Linguistics, Oxford: Oxford University Press.

Widdowson, H.G., (1975), Stylistics and the Teaching of Literature, London: Longman.

Widdowson, H.G., (1984). `Explorations in Applied Linguistics 2´. Oxford: Oxford University Press.

Wilkins, A.J., (1971), `Conjoint frequency, category size and categorization time´. Journal of Verbal Learning and Verbal Behaviour, 10, 383-385.

Williams, M.P. (1982), `A contrastive analysis of text cohesion and development in Arabic and English´, Unpublished M.A. Dissertation, University of Leeds.

Williams, M.P. (1983), `A problem of cohesion´, in English for Specific Purposes, John Swales and H. Mustafa (Eds.), LSU, University of Aston in Birmingham, 118-128.

Winograd, T., (1972), Understanding Natural Language, New York: Academic Press.

Winter, E.O., (1968), `Some aspects of cohesion´, in Sentence and Clause in Scientific English. Report of the Research Project `The Linguistic Properties of Scientific English´, London: University College London, Department of General Linguistics.

Winter, E.O., (1982), Towards a Contextual Grammar of English, London: George Allen & Urwin.

Woods, A.W., (1975), "What's a link: Foundation for semantic networks." In Bobrow, D.G. and Collins, A. (Eds.) Representation understanding. New York: Academic Press, 35-82.

Woods, A.W., (1970), `Transition network grammars for natural language analysis´. Communications of the Association for Computing machinary, 13, 591-606.

Wright, W., (1975), A Grammar of the Arabic Language, Cambridge: Cambridge University Press.

Yorkey, R., (1974), `Practical ELT techniques for teaching Arabic-speaking students´ in Altis, J.E. & Crymes, R. (Eds.), The Human Factors in ESL, Washington, D.C., TESOL, 57-85.

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Zamel, V., (1983), `Teaching those missing links in writing´, ELT Journal, Vol. 37/1, 22-29.

*Berman, R.A., (1984). `Syntactic components of the foreign language reading process´, in Alderson, J.C. and Urquhart, A.H. (Eds) `Reading in a Foreign Language´. London: Longman, 139-159.