A Cross-disciplinary Corpus-based Analysis of the Frequency and Syntactic Positions of Adverbials

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ABSTRACT

Adverbials have been studied numerously by different linguists and have been classified and categorized differently across time by different syntacticians (Bellert 1977; Cinque 1999; Ernst 2002; Dellitto 2007) and semanticists (Ernst 2002; Bonami et al. 2004; Jackendoff 1972). However, all these studies have been conducted in discipline-specific domains. To fill this gap, the main focus of this study is to investigate the frequency of adverbials and their syntactic positions. For this purpose, we have designed our study to be on academically published research articles (RAs) in two hard sciences of Medicine and Engineering, and two soft sciences of Literary Studies and Linguistics. The results indicate that Literary papers have the greatest number of adverbials with 102 and Medical papers have the lowest with only 39 adverbials. In fact, this frequency of adverbials can show the direction of each discipline. When a discipline is based on facts, the researchers use more factual language rather than descriptive one to illustrate the real world. However, human sciences make all attempts to describe the world in which people live so they need a more descriptive language to fulfill their purpose. In terms of position, looking at the eight positions proposed by Quirk et al. (1985), the Medial position is the most favorite of all. In addition, End and Initial positions have second and third popularity in turn. In total, adverbials, due to their flexibility and free movement in sentences, belong to a very complicated class of words that require more research. Furthermore, writers should consider the objectives of their discipline in order to decide what type of adverbials to use and in which position.

Keywords: adverbials, academic papers, adverbial syntax, adverbial semantics, adverbial positions.

I. INTRODUCTION

It is very difficult to find a comprehensive definition for adverbials because of their various forms. Some grammarians don’t differentiate between adverbials and adverbs (Vakili, 2022), but these two terms shouldn’t be confused with each other. Crystal (2003, p. 14) warns us to treat these two terms differently by arguing that adverbs are a member of word classes like nouns, verbs, and adjectives while adverbials show the grammatical functions of words in a sentence. Biber et al. (1999, p. 762) illustrate this difference through the following example:

(1) a. She grinned widely.
   b. Widely varying types of land are cultivated. (Biber et al. 1999, p. 762)

As it can be seen, widely is an adverbial in (1a) while it is a modifier of the adjective varying in (1b). Therefore, when talking about adverbials, we are dealing with the function of a word or a phrase in a sentence rather than looking at the word in isolation and independently. Also, adverbials are in reference to syntactic functions in that they refer to syntactic clause elements (Quirk et al., 1985; Biber et al., 1999; Trask, 2003) within a sentence so that they contrast with other syntactic functions such as subject, object, and predicate (Maienborn & Schäfer, 2011). Adverbials may be realized by noun phrases (2a), prepositional phrases (2b) and finite (2c), non-finite (2d), and verbless clauses (2e) (Ernst, 2002).

(2) a. They go to work every day.
   b. Peter works in the garden.
   c. When I realize,
   d. Thinking about the proposal,
   e. If necessary,
Quirk et al. (1985, p. 501) have syntactically put adverbials in four types of disjuncts (3a), adjuncts (3b), subordinates (3c), and conjuncts (3d):

(3) a. Frankly, we usually understand the situation.  
b. Peter had left the job anyway.  
c. They were just starting the job.  
d. Anyway, it’s getting late.

As can be seen, adverbials belong to a heterogeneous class, open-class mostly, but with different functional and positional ranges. Most are highly mobile and optional and can be omitted or moved to another position without this affecting the grammatical integrity of the clause in which they occur, however, some are less mobile, and others still are obligatory and essential to the specification of the verb (Hoye, 1997, p. 227-8). The examples below are adopted from Hoye (1997, p. 228):

(4) a. (Sometimes,) They (?sometimes) would (sometimes) take (*sometimes) a walk (sometimes) along (?sometimes) the (*sometimes) seashore (sometimes)  
b. (*Downstairs) They (*downstairs) might (*downstairs) be (downstairs); “they’ll be playing down by the lake.”

In addition to their syntactic diversities, adverbial positions differ syntactically which can lead to differences in meaning. Consider the position of even in the following:

(5) a) The man has even broken the door.  
b) Even the man has broken the door.  
c) The man has broken even the door.

(5a) can be interpreted that the man has destroyed or ruined everything, and he has even broken the door. (5b) can have different meanings. Firstly, it can emphasize the whole sentence due to its position (Wyner, 2008). Secondly, it can mean that some other people have destroyed something, and the man, who was not probably expected to do anything, has broken the door. (5c) Can mean that the man has broken a lot of things including the door. As it can be seen when the place of the adverb “even” changes, the meaning changes, too (Quirk and Greenbaum 1973, p. 209).

Adverbials have been semantically divided into seven main groups of space, time, process, respect, contingency, modality, and degree (Quirk, et al., 1985, p. 479), and each group has some subcategories. Additionally, Quirk et al (1985, p. 490) have proposed seven positions for these adverbials: Initial (I), initial medial (iM), medial (M), medial Medial (mM), end medial (eM), initial end (iE), and end (E) positions. The pivotal purpose of this paper is to concentrate on the frequency of adverbials of space, time, process, and adverbial disjuncts. The motivation for selecting these adverbials is noted in the research question section. Furthermore, I will look at their positions in sentences to find out which position is the most frequent. For this purpose, initially, the syntax and semantics of these adverbials and their positions will be presented, and after the methodology and research questions, the data will be analyzed.

II. REVIEW OF LITERATURE

Adverbials have been categorized differently across time by different syntacticians (Bellert, 1977; Cinque, 1999; Ernst, 2002; Dellitto, 2007; Vakili 2020) and semanticists (Ernst, 2002; Bonami et al., 2004; Jackendoff, 1972). However, one of the most comprehensive treatments has been presented by Quirk et al. (1985). In their scheme, adverbials belong to six main categories with their own subdivisions (p.479). The grammatical theory adhered to in this paper follows their adverbial category, but, when necessary, other classifications and interpretations will be presented.

A. Adverbials of Space

Space adverbials establish one of the major groups of adverbials. Maienborn (2001) has divided these adverbials into three categories of “External modifiers, Internal modifiers, and Frame-setting adverbials”. She defends her analysis through the following examples:

(6) a) Eva signed the contract in Argentina.  
b) Eva signed the contract on the last page.  
c) In Argentina, Eva still is very popular.

In (6a) which includes an external modifier, the verb is related to the place in which it has happened. In other words, the “signing event occupies a region that is a part of the region Argentina occupies” (p. 2). In (6b) with an internal modifier, the adverbial doesn’t provide information about the location of the event as
a whole, but it gives information about one part of the event location. In English, “internal locations” almost always happen before the “external locations” in a sentence. In (6c) which has a frame-setting adverbial, the locative is not event-related but “sets a frame for the proposition expressed by the rest of the sentence” (p. 3). She concludes that these adverbials are not omissible, unlike the other two ones since one can’t decide if Eva is still very popular.

Quirk et al (1985) have divided space adverbials into three groups of “position, direction, and distance”. Position refers to immobile (7a) and mobile (7b) statuses of the verb. For example:

(7) a) He lay on his bed. b) They are strolling in the park.

Direction can refer to the adverbials which indicate either a direction with no specific location such as “Eastwards, Westwards” or with a specific direction such as “up the hill, towards the sea”. The third space adverbial is distance indicator in which we can recognize the “Goal” and the “Source” of the movement such as “to the bank, to the bus stop, from the school”.

The last subcategory of space adverbials is the “distance” indicator. These adverbials are usually questioned by “How far?” such as “She has driven this car for 50 miles”.

B. Adverbials of Time

Smith (1991) categorizes time adverbials into four classes of locating adverbials (at noon, yesterday, before Mary left, etc.); durative adverbials (for an hour, from 1 to 3 PM); completive adverbials (in an hour, within an hour); and frequency adverbials (often, sometimes, every week, etc.). She maintains that the completive adverbials and the durative adverbials have the most potential for interaction with the event structure. However, the other two adverbials can refer to a part of the event rather than the event as a whole.

Vlach (1993) classifies time adverbials into four groups: punctual, inclusive, durative, and frequency. He argues that the first three classes are prepositional phrases mainly being accompanied by “at, in, on and for” and sometimes the preposition is absent such as “at noon, in an hour, on Sunday and yesterday”. Many expect “for” to be used with the durative sense, but in cases such as “Allen seeing Betsy occasionally went on for 1989” (adopted from Vlach, 1993, p. 251), this preposition can be used in the inclusive sense. In general, the choice of preposition depends more on the object of the preposition than on whether the meaning is inclusive or durative. In his viewpoint, frequency adverbials can show a pattern “of occurrence of some eventuality over some period of time” (p. 251).

Quirk et al. (1985) divide temporal adverbials into four groups of position, duration, frequency, and relationship. Position temporal adverbials refer to fixed positions of the time and mostly, they are the answer to the question “when”. Like the punctual category suggested by Vlach (1993), temporal adverbials can get the prepositions of “on, in, at, etc.”. Also, they might be accompanied by some adjectives such as “last, next”. Duration adverbials indicate a linear and unidirectional span of time which can be forward (until, up to sometime), or backward (since, from a specific time). Moreover, “for” is an often-used preposition in this adverbial which can refer to the past or future duration of an event. The next temporal adverbial is the frequency which is the answer to the question of “How often?”. This adverbial is the indicator of the repetition of activity over time span. The last adverbial in this group-Relationship- shows the connection between one time and another time such as “still and already”. No specific question is proposed for this adverbial.

Comparing these three views on adverbials, we can observe that all three agree on adverbials of frequency and duration. However, they disagree on two other adverbials. The main difference is that Vlach (1993) looks at the semantics of the preposition rather than the semantics of the whole prepositional phrase, but Quirk et al. (1985) look at the semantics of the whole phrase as well as the semantics of the whole context. For instance, as Vlach mentions “at” and “in” are used for punctual and inclusive adverbials respectively. However, Quirk et al. consider the whole phrase to answer the question “when”, the answers can be “at 2:30 pm or in July”. In addition, Smith (1991) considers the completion of the event regardless of the time span. In her analysis, she states that the act and completion of the event dominate the time adverbial so that the time adverbial can be defined in regard to the verb rather than on its own.

C. Adverbials of Process

Quirk et al. (1985) divide adverbials of the process into four subcategories of “manner, means, instrument, and agentive.” However, other linguists treat these adverbials separately. Wyner (2008) believes that manner adverbials are “modifiers syntactically of verb phrases and semantically of predicates” (p. 253). In his theory, manner adverbials should be defined at the Verb Phrase (VP) level and not in the
sentence, therefore, these adverbials should happen in “close proximity” to the verb. Maienborn and Schafer (2011) believe that manner adverbials are used to specify a manner in which an eventuality or an action unfolds. For example,

(8) Peter answered all the questions skillfully/intelligently.

In this example, the adverbial can be questioned by How? Also, it can be paraphrased by the standard adverbial tests: in an Adj manner, or the way X verbs is adj.

(9) a) Peter answered all the questions in a skillful/intelligent manner.
    b) The way Peter answered all the questions was skillful/intelligent.

Moreover, manner adverbials can scope over the whole sentence due to the eventuality of doing the verb:

(10) Peter answered all the questions, and he did that skillfully.

Kubota (2015) and Morzycki (2016) believe that manner adverbials mainly happen in the close proximity of the verb, and Ernst (2002) states that manner adverbials, if occur initially, highlight the speaker’s judgment on the subject, so it can be possible other speakers have other judgments. For example:

(11) Kenzie foolishly accepted everything on the contract.

Kenzie could have refused or distrusted the contract, but we believe what she did was foolish. Kenzie herself might have been happy with this acceptance. Moreover, we can’t decide if Kenzie is a stupid person, we claim the way she treated the contract was stupid.

However, Wyner (2008) disregards the initial position as a decisive factor for the adverbial type. In his argument, all the manner adverbials are close VP modifiers even in the initial position. For example:

(12) a) Brilliantly, the sportsman talked to the reporters.
    b) The sportsman talked brilliantly to the reporters.

Bonami et al. (2004) look at manner adverbials semantically and they believe that their position shouldn’t be of any importance. For example, “fatally” in “wounded fatally” should be a “Resultative adverb” rather than a manner adverb.

Moreover, manner adverbials happen in active and passive sentences, and they can take scope over negation.

(13) a) Willingly, Hayley advised Jake.
    b) Willingly, Jake was advised by Hayley.
    c) Hayley willingly didn’t advise Jake.

Example (13a) shows that Hayley was enthusiastic to give some advice to Jake, but example (13b) is ambiguous; we can’t decide if Jake was interested in getting advice or Hayley had this interest to give some advice. (13c) shows that manner adverbials can have scope over negation. This task was not complete since Hayley was not interested in giving any advice.

Morzycki (2016) places manner adverbials in the group of Event adverbials along with certain locative and temporal ones. In addition, Hasselgaard (2010) groups manner adverbials with space and temporal ones. In her argument, adverbials should be defined at their semantic level, then, we can decide on the type of the adverbial. For instance, in the sentence “He turned suddenly,” “suddenly” can be both a time and manner adverbial depending on how it is interpreted. Quirk et al. (1985) consider manner adverbials “subjective and gradable.” They can be tested by “quite or very” such as quite carefully, very politely. They also state that adverbials of means and instrument are objective; hence; “non-gradable” like *very mathematically.

Along with that, some adverbials have different types based on their interpretation. For example, in the following sentence, “impressionistically” can be a manner adverbial (in a quite impressionistic manner), or an adverbial of means (using an impression-forming technique) (adopted from Quirk et al.).

(14) The teacher assessed the student impressionistically.

Agentive adverbials, in Quirk et al.’s (1985) words, are mainly “by phrases.” For instance:
(15) The puzzle was cleverly done by Peter.

In this example, “by Peter” is the agentive adverbial and “cleverly” describes how the act of doing the puzzle was accomplished.

In short, in order to distinguish manner adverbials, we need to rely more on the semantics rather than the syntax, and how the adverbial can correspond to the subject or the verb. For instance:

(16) a) Peter carefully wrote the letter.     b) Carefully, Peter wrote the letter.
     c) Peter wrote the letter carefully.

In (16a), “carefully” can correspond to both Peter and how he wrote the letter. In (16b), “carefully” can refer to the act of letter writing, and in (16c) likewise, we deal with the act of writing not Peter’s decision to write the letter. Peter might have been reluctant to write the letter, but due to the situation, he had to write the letter, and he was careful in the letter-writing not in deciding to write it. The difference between (16b) and (16c) can lie in the fact that the former intends to put more emphasis on the act of letter writing and the latter lacks that emphasis. In addition, adverbials of means and instruments can illustrate tools used to do the act of the verb. Therefore, we again need to rely on the semantics rather than the syntax to determine the type of the adverb.

D. Adverbials of Disjuncts

Adverbials of disjuncts are considered to be detached from a sentence and they subordinate sentence elements (Greenbaum & Quirk 1990: 184). Disjuncts have been semantically categorized into two groups; illocutionary and modality disjuncts (Greenbaum 1969, Quirk et al. 1985, Espinal 1991). Illocutionary disjuncts indicate the speaker’s performance of the speech act such as frankly, briefly, etc. while modality disjuncts deal with the speaker’s evaluation of the speech act such as surprisingly, fortunately, perhaps, etc. These two disjuncts can be differentiated by using some syntactic tests. Illocutionary disjuncts can happen in question, imperative and performative sentences while modality disjuncts lack such a quality. For instance:

(17) a) Confidentially, is she married?
     b) *Unfortunately, is she married?

Disjuncts have also been classified syntactically by Greenbaum (1969) and subsequently also by Quirk et al. (1985). In this categorization, they are divided into two groups of “content and style disjuncts.” The former discusses the speaker’s comments on and/or attitudes towards a sentence while “style” disjuncts indicate the way the author of a sentence is writing (18a). Content disjuncts also called “attitudinal” disjuncts by Greenbaum (1969)- form a very large class of disjuncts (18b). For example:

(18) a) Honestly, Peter doesn’t work in this office.
     b) Obviously, they are studying hard.

In (18a), the speaker is showing that s/he is honest However, in (18b), the speaker expresses his/her attitude to the content of the sentence by using “obviously” to be a true condition.

Greenbaum (1969, pp.81-127) has provided a list of general qualities of disjuncts as the following:

1. They have the capability of pre-modification and post-modification such as quite frankly, most likely, oddly enough, etc. like.

(19) Oddly enough, he has been admitted for the job.

2. Unlike style disjuncts, content disjunct can never happen in yes-no or wh-questions. For example:

(20) *Fortunately, is she married?     VS     Briefly, how would you change the class?

3. Disjuncts can be used in the initial position in both positive and negative statements.

(21) a) Obviously, Peter looked happy.
     b) Frankly, Jane wasn’t interested in the idea.

4. However, they can’t accompany restrictive adverbs such as only, particularly, etc. for example,

(22) *Only frankly does Peter work in this office.
5. While content disjuncts can’t happen in imperative sentences, style disjuncts are permitted in these sentences.

(23) a)*Luckily, forget what he said.
    b) Honestly, forget what he said.

6. Style disjuncts most often share a homonym in the form of “manner adjunct.” However, style disjuncts can’t be questioned with “How”. For example,

(24) A: Briefly, Mayra will join us. B: How will she join us? 
    A: *Briefly.

But in the following sentence, we can see that the “How” question can work in such statements:

(25) A: Mayra will join us briefly. B: How will she join us?
    A: Briefly

Here, briefly means in a very short time, so it is a manner adverbial which can be questioned with “How.” As mentioned earlier, disjuncts can be detached from the sentence so that they can be used as short answers to yes-no questions. This means that they “seem to have a scope that extends over the sentence as a whole” (Quirk et al., 1985, p. 613).

In the meantime, different scholars have used various terminologies to describe disjunct adverbials. For instance, Biber et al. (1999, p.764) use the term “stance adverbials” which come in three subcategories of epistemic, attitude, and style. In their classification, epistemic stance adverbials correspond to Quirk et al.’s content disjuncts, or to Huddleston and Pullum’s (2002, p. 767-773) “modal adjectives.”

E. Syntactic Position of Adverbials

Quirk et al. (1985) have proposed seven positions for adverbials namely Initial (i), Initial Medial (iM), Medial (M), Medial Medial (mM), End Medial (eM), Initial End (iE), and End (E) positions.

The adverbials which usually precede the whole statement are considered to have the Initial position such as seriously, anyhow, suddenly. In compound sentences, if the adverbial occurs right after the connector, it still has the initial position. For example:

(26) I was walking down the street when suddenly a man jumped in front of a car.

Medial position adverbials usually happen between the subject and the verb. Quirk et al. (1985) also add that a Medial adverbial can happen between the auxiliary verb and the main verb. For example:

(27) The man had suddenly jumped in front of the car.

Medial positions have some different variations. If they are used between the subject and a modal verb or a to be verb (as the main verb), they are said to have Initial Medial (iM) position. Medial Medial (mM) adverbials are rare in English since they happen in sentences with a verb phrase with three or more auxiliaries. For instance:

(28) They must have sometimes been being used without permission. (Adopted from Quirk et al.)

Quirk et al. (1985) believe that the adverbials which happen after all obligatory elements in a sentence are said to have an End position, so multiple adverbials might have this position in one single sentence. For example:

(29) She kept writing letters feverishly in her study all afternoon. (Adopted from Quirk et al.)

All the italicized adverbials follow the obligatory elements of the sentence, and they all have End position. Initial End position adverbials follow the structure of S+V+A+O. When an adverbial comes before the last obligatory element in a sentence, they are said to have the Initial End (iE) position. Moreover, if the last obligatory element is a clause, the iE is pretty much necessary (Quirk et al., 1985). For example:

(30) She herself interviewed with hurtful disdain the student I had turned down. (Adopted from Quirk et al.)
In this paper, I looked at these different positions of adverbials in order to find out their frequency in academic paper writing.

III. METHODOLOGY

This study follows a quantitative approach to investigate the use and frequency of adverbials in research articles (RAs). For this purpose, I have designed my study to be on academically published RAs in two hard sciences of Medicine and Engineering, and two soft sciences of Literary Studies and Linguistics. In order to select the papers, I, initially, looked at the H-index of each field-related journal. This index aims to provide a robust single-number metric of an academic’s impact, combining quality with quantity (Hirsch, 2005). In fact, this is a measure of the citations a journal or an author receives. The average H-index is 21 in human sciences and 28 in hard sciences, so I selected the journals with higher than 25 H-index.

Additionally, the macro-structure of RAs includes Introduction, Methods, Results, and Discussion (IMRD), and their functions are briefly described below. Swales (1990) considers “Introduction” to build the background and justification of the RA. Cargill and O’Connor (2009) believe that the credibility of an RA is formed in the “Methods” section. Swales (2009) states that the “Result” section is the display of the paper results, and the “Discussion” brings Introduction and Results together to “show the relationships among observed facts” (Day & Gastel, 2011).

IMRD is considered the most reliable and widely used structure of research papers in many fields within sciences although the structure may also be found in the humanities and solid sciences. Therefore, this structure has been approved by APA as a guideline for researchers who intend to have national and international publications.

In order to have unanimity in the structure of the papers, we decided to focus on papers that follow the IMRD structure and discarded the papers with other variations. In addition, we selected empirical RAs and disregarded book reviews, literature reviews, and theoretical papers. Therefore, at first, we browsed the articles for IMRD in order to match my study requirements. Then, attention was paid to the word count in each section to be roughly the same for all papers. Afterward, we randomly selected two articles for each field mentioned above in the last year: thus, accumulating eight articles. Finally, we looked at the adverbials of space, time, process, and disjunct in IMRD sections to detect their frequency and distribution.

A. Research Questions

In this paper, I intend to answer the following questions:

1. How frequently are adverbials of space, time, process, and disjunct used cross-disciplinarily?
2. Which syntactic positions do these adverbials have in each discipline?

The motivations behind choosing these adverbials of space, time, process, and disjunct adverbials are that they, including their subcategories, establish a very large number of adverbials (Biber et al. 1999).

Secondly, these adverbials can have varying positional flexibilities, and finally, a study by Hasselgard (2010, p. 34-38) showed that these adverbials are the most commonly used in written English.

IV. DISCUSSIONS AND RESULTS

In order to answer the research questions, our data has been collected from different disciplines, categorized, and then classified based on adverbials of space, time, process, and disjunct.

A. Research Question One: How Frequently Are Adverbials of Space, Time, Process, and Disjunct Used Cross-disciplinarily?

A quick look at Table I shows that “Literary studies” papers have had the greatest number of adverbials with 341, and after that “Engineering” papers stand second with 213 adverbials. “Linguistics” and “Medicine” papers come third and fourth with 201 and 131 adverbials respectively.

A look at the details of adverbials in Literary papers, we can observe that process adverbials including “manner, means, instrument, and agentive” occupy the highest frequency with 102. Among process adverbials, the majority involves adverbials of manner and agentive while adverbials of means and instrument are not as popular as the others. Meanwhile, adverbials of space are prevalent in this discipline.

The fundamental activity involved in literary research presupposes “interpretation” and this necessitates the description of a series or sequence of psychological experiences’ involving the author, the work, and the reader (Bateson, 1972, pp. 101-102). Therefore, this descriptive nature of Literary papers has led writers to have used more “position” adverbials of this category in order to clarify the situation in which the study and observation was taking place.
Disjunct adverbials in Engineering are of the highest proportion among all disciplines with 97. This might be due to the probabilities that Engineering papers deal with. In this discipline, the results are based on some speculations, so these adverbials can be abundantly found here. In addition, we can see a lot of personal attitudes towards the statements such as surprisingly, emphatically, etc.

In linguistics papers, as we can see adverbials are almost fairly distributed with the highest in process adverbials with 67 and lowest in time adverbials with 23. The most-used adverbials of the process included agentive and instrument. As I was reading these papers, I noticed that, in this discipline, passive structures are used more than other disciplines so that agentive adverbials would have a higher proportion. Medical papers, despite having almost the same length as other papers, have the lowest number of adverbials by the time it is reported on the data. This could be due to its factual and human-experiment nature and because they address very clear and certain outcomes. We can see that space adverbials are of the lowest proportion (only 18 adverbials) and disjuncts are of the highest with 47 adverbials.

In general, Literary papers have the highest number of adverbials in total. Regarding the adverbials individually, we see that this discipline stands first among all except for disjunct adverbials which are of the highest in Engineering. Moreover, it can be seen that adverbials of space in Medical papers have the smallest number of all adverbials while process adverbials in Literary studies have the highest contribution. Moreover, as Vakili and Mohammed (2020) state teaching grammar explicitly can increase the students’ awareness of the use and function of grammar, therefore, they will be able to use language more cautiously.

**B. Research Question Two: Which Syntactic Positions Do These Adverbials Have in Each Discipline?**

Table II shows the syntactic position of adverbials in each discipline. As illustrated below, the majority of adverbials have the middle position (404 times) in total. Literary papers show the most interest in using adverbials in the middle position with 156 times, then Linguistics papers stand second with 93 and Medical papers come third with 79 times and Engineering has the least number of adverbials in this position.

The Initial (i) position of the adverbials is of the second preference among these disciplines with 122 times occurrence. Literary papers have the highest number in this position with 51 times and after that Engineering sits second with 41. The initial position of sentences has been occupied 21 and 9 times by Linguistics and Medicine respectively.

| No. | Discipline     | Space | Time | Process | Disjuncts | Total |
|-----|----------------|-------|------|---------|-----------|-------|
| 1   | Engineering    | 39    | 34   | 43      | 97        | 213   |
| 2   | Linguistics    | 52    | 23   | 67      | 59        | 201   |
| 3   | Literary studies | 85    | 70   | 102     | 84        | 341   |
| 4   | Medicine       | 18    | 27   | 39      | 47        | 131   |
|     | **Total**      | **195** | **154** | **251** | **287** | **886** |

In the Initial Medial (iM) position, we can find an almost equal distribution of adverbials among three disciplines with the highest of 29 in Literary studies, 28 in Linguistics, 23 in Engineering, and the lowest of 7 times in Medicine. As Quirk et al (1985) claim Medial Medial (mM) position is very rare in English, and as the table illustrates, mM position has happened only 6 times in total.

The End Medial (eM) position also has a fair distribution of adverbials among three disciplines with 24, 22, and 18 in Engineering, Literary Studies, and Linguistics respectively and the lowest of 7 times in Medicine. After mM position, the initial end (iE) position of adverbials has the second-lowest popularity with only 41 times. As the table shows, this position has the greatest occupancy in Literary studies with 15 and then Engineering 13 and Linguistics 12 times. iE position has only been used once in Medical papers. Literary papers have the greatest use of end (E) position with 66 times and Engineering papers come second with 35 times. Moreover, Medical papers have used the end position 28 times and Linguistics papers stand the last with 26 times in this position.

In general, as seen, the Medial position is the most favorite place for all the disciplines in the discussion and after that initial position comes second. The Medial position is probably considered more academic sounding in Present-Day English so that adverbials have been used in this position more often than other positions. The least favorite place for adverbials is the mM position which can be due to the fact that three or more auxiliaries should be present in one statement in order to have this position.
V. CONCLUSION

The initial purpose of this paper was to investigate the frequency of adverbials among four disciplines—two hard sciences of Engineering and Medicine, and two soft sciences of Linguistics and Literary studies. Moreover, the syntactic position of adverbials was another matter of question in this study. The results show that Literary studies use adverbials more than other sciences. This can be due to the descriptive nature of this discipline. Meanwhile, of all types of adverbials, disjunct adverbials have been the most popular with 287 adverbials in all disciplines. Since in research papers, experiments and probable results are mainly discussed, therefore; adverbials of disjuncts can have the highest application in this genre of academic writing. In addition, Medical papers have the lowest number of adverbials in total because this discipline is founded on facts and as we can see in Table I, adverbials of disjuncts have the least frequency in this discipline. After adverbials of disjuncts, process adverbials have the highest frequency with 251 adverbials. Not surprisingly, we can see that Literary papers have the greatest number of adverbials with 102 and Medical papers have the lowest with only 39 adverbials. In fact, this frequency of adverbials can show the direction of each discipline. When a discipline is based on facts, the researchers use more factual language rather than descriptive one to illustrate the real world. However, human sciences make all attempts to describe the world in which people live so that they need a more descriptive language to fulfill their purpose.

In terms of position, the Medial position is the most favorite of all. In addition, End and Initial positions have the second and third popularity in turn. As much as the adverbial is closer to the head of the sentence, the adverbial finds more emphasis, therefore; the end position can illustrate the less importance of the adverbial and the initial position can show the writers have put more emphasis on that particular adverbial (Wyner, 2008). In the meantime, since most of the adverbials are used medially, it can be interpreted that the writers have tried to pursue a level of balance between having or not having an emphasis on the adverbial. In total, adverbials, due to their flexibility and free movement in sentences, belong to a very complicated class of words that require more research. Furthermore, writers should consider the objectives of their discipline (Mohammed & Vakili, 2021) and also the culture of the target language (Vakili & Mohammed, 2021) to decide what type of adverbials to use and in which position. The results of this study are beneficial not only to students training as ESL teachers but also to researchers as they examine the types of knowledge students bring to class and the tools needed to expand, develop, or change such knowledge. This knowledge of adverbs and adverbials seems important to researchers to build their scientific knowledge of the world and analytic skills.

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